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THE
OLDIER
OR THE
METHOD
OF
TREATING THE DISEASE
OF
THE
OLDIER
OF

XXII₃



THE
SOLDIER'S *Vade Mecum*:
OR, THE
METHOD
OF
CURING the DISEASES
AND
PRESERVING the HEALTH
OF
SOLDIERS.



THE
METHUEN
CURING THE DISEASES
AND
PRESERVING THE HEALTH
OF SOLDIERS.

LONDON.
THE
SOLDIER'S *Reade Mecum*:
OR, THE
METHOD
OF
CURING the DISEASES
AND
PRESERVING the HEALTH
OF
SOLDIERS,

I. In CAMPS.

III. During MARCHES.

II. In GARRISONS.

IV. In all the different
Countries of *Europe*.

Translated from the *Latin* of
L. A. P O R T I U S. M. D.

ILLUSTRATED WITH CUTS.

To which is added,

A T R E A T I S E on the same Subject,
translated from FREDERIC HOFFMAN,
Professor of Physic at *Hall* in *Saxony*.

A L S O

An E S S A Y on the Diseases of
S A I L O R S.

L O N D O N:

Printed for R. DODSLEY, at *Tully's Head*, in
Pall-mall. 1747.



TO THE
READER.

TH O' 'tis certainly a base
and unmanly Practice, to
raise one Author on the
Ruins of another, yet we
may, without committing the smallest
Transgression against the Laws of com-
mon Equity and Justice, prefer the
present Work to all that have hitherto
appear'd on the same Subject; since most,
if not all of the Physicians, who have
treated of Camp Diseases, have either
only considered those which appear in
certain Countries, or are incident to
particular Constitutions; whereas the
A 2 judicious

judicious Portius has extended his Plans much farther, specified the Diseases incident to all Climates and Constitutions, laid down the most effectual Methods of preventing them ; and, when they happen, prescrib'd the least expensive, and at the same Time the most efficacious Remedies for removing them. But as genuine Worth requires no Encomiums, we leave the Merit of the Work to procure its Reception with the Public.



CON-



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THE GAIETY

The



The A R T of
PRESERVING the HEALTH
O F
SOLDIERS in CAMPS.

P A R T I.

*Of the Causes of Diseases which happen in Camps,
and of the Remedies to be used for their Cure.*



A M O N G the various literary Productions of Antiquity, handed down to the present Days, none is more excellent than *Hippocrates's Treatise on ancient Medicine*; in which that judicious Author ridicules and condemns those who account for all the Phenomena of the animal Œconomy by vain and ill-grounded Hypotheses, invented by themselves, and which they think intitle them to the pompous Appellation of Philosophers. The Author, in that Work, explodes
B plodes

plodes all useless Disputes, confines his Researches after Truth to no particular System, examines in a Manner relative to the human Constitution, all the Non naturals, or the various Kinds of Foods and Exercises we use, and, by a sure and easy Method, determines which are salutary and which noxious. He first enquires into those Things which contribute to Health; from them deduces the Causes of most Diseases; and, to render his Doctrine more intelligible, illustrates it by Examples drawn from the Effects produced by every thing we use. His Detail is so circumstantiated and particular, as to extend to the Marks and Signs by which good Bread is known; and he highly extols those who first invented the Method of converting the various Species of Grain (which without Preparation would afford but crude and disagreeable Nourishment) into a grateful and salutary Aliment.

I shall therefore, in Imitation of the divine *Hippocrates*, inquire into the Nature of those Things which constitute the Subject of the ensuing Treatise; and without descending to Trifles, by some insisted on in order to be thought learned, briefly lay down the Measures to be taken by Soldiers for the Preservation of their Health in Garrisons; that after discovering these Measures, we may know the Changes incident to their Manner of living in Camps, and the Diseases produced by them.

I hope the *Literati* will pardon me if I frequently enter into the most minute Details, since without any Design to dictate to them, I only intend to instruct the Soldier with respect to every thing which can contribute to the Preservation of his Health. And as *Erasistratus* was not ashamed to teach the Manner of boiling Succory, so neither shall I blush to direct a salutary Nourishment for the Soldier, and inform him what Measures he is to take in order to facilitate Transpiration, and preserve the Body in a State of perfect Health.

CH A P. I.

Of the Things which contribute to the Preservation of the Soldier's Health when in Garrison.

LET us then enquire into those Things which preserve the Health of Soldiers, when they lie in Garrisons, in Towns, or Cities; that thus by a Comparison of their State in those, with the various Accidents to which they are exposed in Camps, we may with the greater Ease investigate the Causes of their Disorders.

Soldiers who live in Garrisons, almost every Day eat some hot Aliments, such as boil'd or

roasted Flesh, Bread boil'd in Broth or in simple Water, Roots or Herbs boil'd in Water and seasoned with Salt, and a little Fat, Pot-herbs boil'd, Preparations of Wheat or Barley, and in a Word, every thing which can afford a good and salutary Nourishment.

Soldiers in Garrisons, Towns and Cities, often live upon boiled Aliments; but there is a very considerable Difference between hot boil'd Meat and such as is cold; for several boil'd Aliments prove prejudicial to Health, because they are not eaten hot, when they contain a large Quantity of igneous Particles. Fat Broth, for Instance, generally proves beneficial when drank hot, but is frequently hurtful when used cold; I say *frequently*, for there are some Constitutions to which cold Broth will prove beneficial, and there may be particular Cases in which a certain Quantity of cold and coagulated Fat may be proper. But I think it expedient to consider what happens most commonly, and only treat of that which is salutary or prejudicial to the greatest Number of Persons. Tho' I do not deny that some Aliments are better cold than hot, yet I would have it carefully observed, that Soldiers who live in Towns and Cities use warm Aliments for most Days of the Week.

Soldiers who live in Cities drink Wine, Malt Liquors, or pure and salutary Water. They are less obnoxious to the Changes of the Air and
the

the Disorders produced by them, because Towns and Cities are less exposed to the Inclemency of the Weather, than open Fields. The Number and Proximity of the Houses, together with the great Number of Fires, contribute very considerably to the Production of this lucky Circumstance; and, which is an Advantage of no less Importance, tho' Men in Cities should during the Day be employ'd in hard Labour in the Rain, or exposed to the Sun, yet in the Night they sleep in close Places, which defend them from those sudden Changes of the Air, which in some Countries are so considerable, as greatly to disorder the Constitution.

I do not here speak of the Inhabitants of *Barbary*, nor of those who live under the Line, where Changes of the Air rarely happen, since the Winds blow from the same Quarter for several Months of the Year; for which Reason the Natives expose themselves very much to the Air; but I must confine my Observations to *Europe*.

As I am convinced that it is of great Importance to know the Temperature of the Air we breathe, I shall make some Remarks, in order to render what I intend to say on this Subject the more intelligible.

The Bodies of all Animals continually emit certain Corpuscles, which we may call Exhalations

tions or Vapours, and which, mixing with the external Air, render it of a particular Quality, and as it were appropriated to the Nature and Constitution of the Animals. When a Person is in a close Room in the Night-time, the Air contain'd in it undergoes but a very small Change, so that the Person is in an Air proper to himself. A great Part of the Exhalations emitted from the Body, serve to defend it against the Injuries of the external Air ; and the Atmosphere, which surrounds it, augments considerably in the Night, when the Body is in a very close Place.

Tho' every one has not perhaps adverted to this Observation, yet the Truth of it is so evident, that it cannot be doubted by any Person who understands the Terms, especially if has previously read Mr. Boyle's *Treatise on Atmospheres*, which I have afterwards mention'd.

Soldiers who live in Cities generally throw off their Cloaths and sleep in Beds, by which means they in some measure guard against the sordid Matter which might otherwise adhere to their Bodies, perspire more freely, and prevent the Obstruction of the cutaneous Pores.

C H A P. II.

Of the Changes incident to the Soldier's Manner of living when in Camp.

“ G I V E me, says *Hippocrates*, a Man who
 “ is not of a robust Constitution, and
 “ who is nourished by farinacious Aliments,
 “ eats crude Substances and drinks Water, and
 “ I am certain that he will be subject to various
 “ terrible Disorders. He will, for Instance, be
 “ afflicted with Flatulences, and tormented with
 “ Pains ; his Body will become weak, the Dis-
 “ charge of his Excrements irregular, and he
 “ will not live long.”

From this Doctrine of *Hippocrates* it follows, that Soldiers, who in Camps rarely or never use warm Aliments, are very readily subject to Diseases ; for as in Towns and Cities they in a great measure preserve their Health by the Use of hot Aliments, so it is hardly possible but a Change of Food should produce a proportionable Alteration in their Temperaments and Constitutions.

If the Bread in Camps is much worse than it generally is in Garrisons ; if it is heavier, or less bak'd ; or so little bak'd, that, as it some-

times happens, it rather resembles Dough than Bread; if it has by any Accident acquired an ill Smell; if it is mouldy, yellow, black, or covered with Soot, the Soldier will infallibly be seized with some Disorder, which will soon affect not only his Stomach, but the whole of his Body.

Soldiers often live on crude, raw, or ill-prepared Aliments; such as salted and smoak'd Foods and Fish; bad and unripe Fruits, Melons, Cucumbers, Pumpkins, crude Roots and Herbs. As the Soldier therefore, who in his Garrison enjoy'd perfect Health, by the Use of well-dress'd Aliments, so the Use of raw or half-prepar'd Aliments, must necessarily induce very dangerous Disorders.

Armies not only frequently march through, but also encamp in Countries, where the Water is of so hurtful and pernicious a Quality, as to induce numberless Disorders on the Soldiers.

Besides, granting that the Waters of any Country are good, yet they may speedily prove mortal to Soldiers, if they should be so imprudent as to drink large Quantities of them when they are over-heated by marching, the Fatigue of Battle, or any Part of Military Exercise; and if the immoderate Use of Water in such a Condition should happen not to prove mortal, yet 'tis certain that it is the natural and immediate

ate Cause of many of the Disorders which rage in Camps.

Besides, Water is equally prejudicial to Horses and Mules, when their Humours are overheated by excessive Labour and Fatigue: Those Persons therefore who have the Charge of them, ought to keep them at a Distance from Water, till the Humours assume their calm and natural Motion in the Vessels. Neither should Horses be permitted to enjoy sudden Rest immediately after violent Exercise; since it is absolutely necessary to make them walk gently, till the Blood and Spirits gradually resume their usual and natural Motion.

But Soldiers when afflicted with Thirst, disregarding this Doctrine, fill their Hats or their Flasques with Water, which they drink off at a single Draught; and thus the Man, who was perhaps able to have routed great Numbers of his Foes, falls a Victim to his own Folly and Imprudence.

The sudden Changes of the Air are no less prejudicial to the Soldier; since his Body, which is often over-heated and disposed to sweat, has its Transpiration (which is necessary to Health) obstructed by the Inclemency of the Air. Hence arise the Head-achs and Fevers, which so frequently rage among Soldiers.

As the Air continually touches the Bodies of Animals, and may in various Manners be either hurtful or beneficial, when it is drawn into the Lungs; as it acts very powerfully on the external Surfaces of Bodies, which it changes only by Contact; and as the great Changes which happen in it are not generally beneficial for Health, we shall add some Remarks, shewing how prejudicial Air of a bad Quality may be to Soldiers.

The Soldier often passes from a pure and salutary Air into Ditches and Mines, where it is so thick and stagnant, as to be capable of suffocating; which often happens in Mines. But granting that the Air in those Places was not so noxious as to produce a Suffocation, yet various Disorders may be induc'd by remaining in Mines or Ditches.

If the Soldier does not remain long in these Places, he generally breathes the adjacent Air, or that convey'd from newly digg'd Earth, and which is generally very prejudicial. Thus at *Rome*, when the Workmen were digging in order to lay the Foundation of the *Pamphilian* Obelisk, many Persons in the Neighbourhood were seized with Fevers and other Disorders, exactly similar to those which rage in Camps.

The

'Tho' this Cause of Diseases is but little advert-
ed to, yet it nevertheless exists in Camps, where
the Men are constantly forming Ditches and
Trenches. It must however be confess'd, that
these bad Qualities of the Air, are far more pre-
judicial to Soldiers when asleep, than to such as
are awake and employed in any Business: 'Tis
also observable, that almost all Poisons operate
more powerfully upon Animals at Rest, than
on such as are active and employed in any
Work.

I have before observed, when enumerating
the Causes which contribute to the Preservation
of the Soldier's Health in Garrisons, that all
Animals had their Bodies surrounded by a cer-
tain Atmosphere which is proper for themselves,
and which is far largest and strongest in the
Night, when the Animal is lodged in a very
close Place. I also observ'd, that the greatest
Part of this Air with which the Animal was
surrounded, consisted of Exhalations from his
own Body, and that it serves to defend him
against the sudden Attacks of any other Air
composed of heterogeneous Parts. Now 'tis to
be observ'd, that when the Soldier sleeps in Camp,
he has not such an Atmosphere as this around him ;
or if he has, it is smaller and less extensive: For
if he sleeps in the open Air, the Wind, which
continually brings a new Air, does not permit
the Corpuscles emitted from his Body to remain

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long

long around it; and if he sleeps in his Tent, it cannot prevent the Access of the Air, nor defend him from Fogs and other Things brought along with the Wind, and which, as we have before observed, are more prejudicial to him who sleeps, than him who wakes.

I must here apprise the Reader, that I speak only of what happens most generally; for I could form an Idea of Cases, in which it would be an Advantage to sleep in the open Air, and in which it would be expedient that the Air should change around our Bodies, in the same Manner as the Water of a River does about the Body of a Person who bathes himself in it.

In recounting the Advantages a sleeping Person receives from the Atmosphere which surrounds him, I would not be thought to insinuate, that the Place where he sleeps ought to be exactly closed, and as it were hermetically seal'd, so that no Air can either enter, nor any Part of that Atmosphere get out. These Things ought to be understood in a Manner consistent with good Sense; and the Railleries of pretended Philosophers would be very unseasonable on such a Subject, since the Truth of what I have advanc'd, cannot be call'd in Question by any Person of the smallest Sagacity and Judgment.

I would

I would not have it thought that it is a Circumstance of an indifferent Nature, whether the Soldier changes his Cloaths or not for many Days successively ; for besides the Vermin so copiously engender'd in Troops, the Nastiness and Sordes adhering to his Body hinder Respiration, and may by that Means produce numberless Disorders.

Besides, in Camps the Soldier's Sleep is often more interrupted, and his Fears and Hopes more frequent and violent than when he lives in Garrison.

If it should be said, that in Cities and Towns when besieg'd, the Soldiers and Inhabitants have their Sleep as much interrupted, and their Hopes and Fears equally violent, as if they were in Camps: I answer, it is so. And this is also the Reason why in such Cities and Towns, the Soldiers and Inhabitants are seized with the same Disorders which rage in Camps, or with others highly similar and analogous to them. An Instance of this was lately observ'd in the Siege of *Vlenna*.

I have not enumerated the Causes, which to me seem'd to be of the least Importance, among which we may reckon the great Number of the Carcasses of Men, Horses, and other Animals, of which I shall speak when I come to
con-

consider the Corruption of the Air produced by them. It is certain that these engender an infinite Number of Worms and Flies; and 'tis said that these last were not only troublesome to Men during the Siege, but also, after it was raised, destroyed many Horses.

C H A P. III.

Of the Causes of those Diseases which happen in Camps, on account of the Nature of the Climate.

PHYSICIANS of the greatest Sagacity and Experience assert, that the Camp-Diseases may rage in all Countries, when many of the Causes we have before mention'd concur to their Production; and I must own I cannot help approving of their Opinion: For it often happens, that among the great Number of People who live in the same Country, some are in good Health, whilst others are afflicted with Diseases, tho' the former are in a Town, and the latter in a Camp contiguous to it. If in a Town some of the Inhabitants live in the same Manner with the Soldiers in Camp, whilst others of them follow the ordinary Regimen of Tradesmen, it is not surprising that many of the former should be sick, whilst very few of the latter should labour under any Disorder. The Diseases

eases of Camps are principally produced by the Change in the Soldier's Method of living; and when this Change is too frequent, the Constitution of the Body must also undergo a Change, and the Patient become sick in whatever Climate he should happen to be. Now in Camps there happen almost every Day Changes in those Things which preserve the Health of Soldiers when they are in Towns; and consequently if the Constitutions of Soldiers in Camps are not duly treated and taken Care of, such Changes will happen in them, as must of Necessity destroy the most perfect Health.

It is certain, that in some Countries there may be peculiar Causes of the Disorders of Soldiers, different from those we have already specified. Tho' most of the Sovereigns of *Europe*, every Year keep some Troops in the Field, yet we do not find that Diseases and Death are so frequent among them, as they are among the Troops in *Hungary*; so that 'tis necessary to investigate whence this Difference proceeds.

Many celebrated Authors assert, that the Air of *Hungary* is unwholesome, tho' there are in that Kingdom many flourishing and populous Cities, in which the Inhabitants arrive at an extreme old Age.

But

But granting that the Air of *Hungary* is unwholsome; if we ask why is it so? the *Literati* answer this Question in a very obscure Manner: For if you ask them what they mean, they at last confess, that the Malignity of the *Hungarian* Air consists in a certain *occult Quality*, which produces most of the Diseases which rage in that Country. But this is so far from being satisfactory, that its Obscurity renders the Nature of those Diseases more difficult to be known, and consequently the Manner both of preventing and curing them, must be proportionably more difficult and precarious.

Perhaps we may listen more chearfully to those who assert, that Diseases are so frequent in *Hungary*, only because the Soldiers neglect their Health: But I am far from approving of this Way of Reasoning; for where the Commanders and Officers are extremely careful of every Thing which can contribute to the Health of the Soldiers, there it is morally impossible that the same Soldiers should neglect it; since in all Kingdoms and States, the People easily conform themselves to the Example of the King; and in every Nation those Arts and Sciences are most effectually and voluntarily cultivated, which are most favour'd by the Prince.

Let us then suppose, which however is not true, that the Soldiers in the *Hungarian* Troops have

have but little Care of their Health; I cannot more effectually condemn such Negligence, than by commending the Care and Diligence of those who neglect no Means for the Preservation of Health.

In *Hungary* the Rivers are greatly increased in Winter, and the Ground becomes marshy in a great many Places; whereas in Summer the Rivers decrease, and the Marshes in a great measure become dry. Now, 'tis certain from Experience, that wherever Marshes become dry, they render the adjacent Air contagious to every Animal. The *Hungarian* Armies generally never depart from the Brinks of the *Danube*; since 'tis sufficiently certain, that securing these, is equivalent to securing the whole Kingdom; because the latter is peaceably possessed by the Man who is Master of the former. Hence it is that in *Hungary* the Soldiers are often reduced to a Necessity of encamping not only near Marshes, but also in Places which but a little before were Marshes themselves.

Tho' in *Hungary* the Water of the *Danube* is not absolutely so pure as some other Waters which the Soldiers might use; yet it is not unwholesome. But when the *Hungarian* Troops encamp at two, three, or more Miles Distance from the *Danube*, it would be too great a Fatigue to transport a Quantity of Water sufficient

ent for such a numerous Army ; so that the Men are forced to drink the Waters of the Lakes and Marshes ; the latter of which, when they do not lye on high and rising Grounds, are very dangerous, and proper to produce Diseases. If they dig Wells, they are generally at no great Pains in that Work, and if they should, they soon become nasty and full of Mud ; because it is often very hard, if not impossible, to preserve Cleanliness where there are vast Multitudes of People.

In most Parts of *Hungary*, the Soil communicates its Qualities to the Waters of the Wells, which renders them very unwholsome, and proper to produce Diseases ; and this in a particular Manner happens in newly digg'd Wells. I'm therefore of Opinion, from what I observed of a Well whose Waters were the first Year heavy and unwholsome, but afterwards of an excellent and salutary Quality ; since the Waters, by carrying off from the Soil all the Particles which rendered their Qualities bad, leave nothing in it which can be carried off and mixed with the Waters, which in consequence of this become salutary.

In *Hungary*, the Changes and Variations of the Air are so frequent, that in one Summer's-day the Inhabitants are exposed to two different Seasons ; for if we may believe the Relations of Persons who have been there almost during the
whole

whole of the Summer, the Soldiers about Mid-day are expos'd to violent Heats; which towards the Evening, and in the Night, are succeeded by no less excessive and intense Colds. I have formerly observed something analagous to this about the Mouth of the *Tyber*, where Lakes and Marshes are also very frequent. In Summer, when the River decreases, these Marshes and Lakes are in a great measure dried up, and render the Place extremely unwholsome. All these Causes are sufficient to produce Disorders; and if we add them to the general Causes of the Disorders of Camps, we shall find that they may produce more frequent, troublesome and dangerous Diseases in the Armies of *Hungary*, than in those of any other Country of *Europe*.

If any Physician or Philosopher knows any other Causes of the Disorders of the *Hungarian* Soldiers, he ought, as a good Member of Society, to communicate them to the Public, that the Precautions necessary, both for the Prevention and Cure of these Disorders may be the more effectually taken.

C H A P. IV.

An Indication of the Remedies proper to be used.

“ **W**HAT Remedy, says *Hippocrates*,
 “ shall we exhibit to the Person who
 “ becomes sick by eating ill-prepared Bread,
 “ or crude Aliments, and drinking Water?
 “ We must make him abstain from his usual
 “ Nourishment; give him good Bread instead
 “ of bad; order him hot and well prepared, in-
 “ stead of crude and raw Aliments. He must
 “ also drink Wine. It is impossible, but that
 “ after this Change he must recover Health,
 “ unless his Strength is too much exhausted,
 “ either by Age, or his former Regimen.”
 It is sufficiently obvious to every Person of com-
 mon Sense, that we ought, as soon as possible,
 to abstain from what is prejudicial to us, and
 with all Expedition change an improper Regi-
 men, if we intend to get rid of the Disorders
 produced by it.

In Imitation then of *Hippocrates*, I affirm,
 that if a Soldier falls ill because he rarely or
 never eats hot Aliments, it is necessary to give
 him something which is proper for his Consti-
 tution, and which at the Time he uses it, con-
 tains a large Quantity of igneous Parts. (See
 Part

Part II. Chap. 1, 2, and 3.) If his Disorder is produc'd by eating bad Bread, he must use that which is good. (See Part II. Chap. 2 and 3.) If he becomes indisposed by eating crude Aliments of a bad Quality, let him every two or three Days use Food of a contrary Quality, or, which are still better, well-prepared and wholesome Aliments. By these Means he will preserve Health, or at least be less subject to Diseases; for Man is of such a Nature, that he can support many Hardships, provided at proper Intervals he uses Aliments of a wholesome and salutary Quality. (See Part II. Chap. 2, 3, 4 and 5.)

The Soldier who, when over-heated, and his Humours put into a Commotion by violent Fatigue, is desirous to drink cold Water, ought to be persuaded, that by so doing he procures his own Death (See Part II. Chap. 6 and 7.) Let him carefully observe the Conduct of those who have the Charge of Horses and other Beasts of Burthen, which are not permitted to come near Water whilst their Humours are too much rarified by Labour and Fatigue. Let him therefore abstain from drinking cold Water when his Body is in such a State, and allow a sufficient Time for the Humours and the Heart to resume their natural Condition: Let him at first begin with washing his Mouth, and drinking with great Moderation. He may however drink a larger Quantity of Water mix'd with Wine, or of
any

any of the Liquors which (in Part II. Chap. 7.) I shall teach him to prepare at a small Expence. Let him make Choice of a Liquor which is not absolutely weak and entirely destitute of Spirits; or let him add to common Water some Drops of Brandy, till he discovers by the Smell and Taste that its noxious Quality is alter'd, and by these Means the Water he drinks will not prove prejudicial to his Health.

Tho' it is not in a Soldier's Power to defend himself against all the Changes of the Air and Weather, yet there are various Expedients for rendering these Changes less prejudicial, or when they have already produced any Disorder, for preventing its Increase and Growth, which are promoted by a want of due Care. (See Part III. Chap. 2, 3, 4, 5 and 6.)

When he is forced to live in Mines and subterraneous Places (See Part III. Chap. 3.) he ought not only to embrace every Opportunity of enjoying the free Air, but also to use certain Precautions and Remedies, in order to repair the Injuries he has sustain'd.

He ought also to use the same Precautions and Remedies, when the Discharge of the several Parts of his Duty requires him to live, for a considerable Time, near Ditches, or a Soil of a noxious Quality lately digg'd up. (See Part III. Chap. 3.)

When

When he is confin'd to an heavy and unwholsome Air, he ought, in order to guard against the Diseases with which he is menaced, carefully to keep himself awake ; since by sleeping, as well as by the want of due Exercise, he will not fail to have his Health injur'd. (See Part III. Chap. 4.)

If he is forced to remain for a considerable Time in a bad Air, (See Part I. Chap. 8.) and even to sleep in it, (See Part III. Chap. 4.) it will be a great Advantage to him to increase and augment the Atmosphere of his own Body, and preserve the Vapours continually emitted from it, around him. By the same Means, when he sleeps, he defends himself against the sudden Changes of the Air, guards against the noxious Particles of the Fogs during the Night, and preserves a due Degree of natural Heat.

As a Soldier often has it not in his Power to change his Linnen for many Days successively, he ought, when he is off Duty, to cleanse his Body, use Frictions, bathe himself, and anoint his Limbs with some pingueous Substance, such as fresh Butter; tho' it will be sufficient now and then to rub them with a Piece of Paper besmeared with Butter. (See Part III. Chap. 5.)

As it is but common Equity to do Justice to the most barbarous Nations when they deserve it,

it, so we must confess that the Soldiers of the *Turkish* Army are more careful than ours, to preserve the Health and Cleanliness of their Bodies; for which Reason they transpire more freely, have their Limbs more strong and pliant, and are less subject to Diseases.

Tho' the Sleep of Soldiers in Camps is often interrupted, and tho' their violent Hopes and Fears make great Impressions on their Minds, yet these Circumstances are of no great Importance, since the Soldiers are not only soon accustom'd to them, but also have Time enough to refresh themselves, and sleep as long as is necessary for the Support of Nature.

Provided they do not, after their Duty and Fatigue are at an End, indulge themselves in Voluptuousness, Gluttony and violent Exercises, they have Time enough to take Care of themselves. They ought therefore to wash and cleanse themselves, procure salutary Nourishment, take proper Repose, and if they have any spare Time, employ it in such a Manner as is most diverting and agreeable to themselves.

The Worms and Flies, the Number of which is in a great measure owing to the Abundance of Nourishment they find in the Carcasses, will cease to be troublesome, if the Things capable of supporting them are removed to a sufficient Distance from the Camp; that is, if Cleanliness is carefully

fully preserved, and the Carcasses of Animals, as well as the Excrements of Men, buried in Ditches, by which Means the Flies will not have such a Number of Nests to deposite their Eggs in. The Quantity of the Worms will also be diminished, as well as that of the Flies, which in their Turn will produce fewer Worms. By this Means also the Air will be render'd more pure, and the Soldiers will not be so often exposed to those Disorders which arise from a noxious and ungrateful Smell.

C H A P. V.

Containing a Resolution of some Difficulties.

WE are frequently obliged to answer the Impertinences of certain Persons, who thro' an ill-grounded Pretence of knowing more than their Neighbours, are not so remarkable for their own literary Productions and the Instruction they give to others, as for the Liberty they take of contradicting and opposing every Thing. Envious and jealous of the Reputation of others, they use their utmost Efforts to diminish the Glory of those who attempt any Work of real Use and Advantage to Mankind. Such Persons are perpetually finding Difficulties, and rather love that the most noble Production should perish, than that its Author should meet with the

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Reputation due to his Labours. Every one who thinks in a juster manner than themselves, is the Object of their Hatred and Aversion.

Some Persons of this wretched Disposition of Mind may possibly object to me, that all I have said is so evident, that the most Ignorant as well as the Learned, cannot doubt of it, and that it consequently ought to be despised, in the same Manner as some Persons condemn certain Aphorisms of *Hippocrates*, such as the following.

“ Restless Sleep is a bad Symptom: If the Humours which ought to be evacuated are carried off by Stool, the Patient is the better, and easily bears the Evacuation: Abstinence cures the Diseases produced by Repletion.”

These, say they, are to be condemn’d, because they teach us nothing new, nothing that is not known by every Body.

I answer, That if the Things I have advanced are true, they ought to be the more regarded, because they are clear and evident. And if I have advanced nothing but what is plain and evident, yet still the World lies under an Obligation to me for having collected such a Number of useful Principles, the Truth of which every one is obliged to acknowledge; for Truth is of such a Nature, that when it is once perceived, it enables the Mind to deduce many other Truths from it. I am however of Opinion, that by recounting what is either beneficial

cial or hurtful to Soldiers, I have laid a Foundation for preserving the Lives of many of them; for a Knowledge of what is both useful and prejudicial, may justly be accounted a considerable Remedy against Diseases which may happen.

To these vain Critics I shall oppose the Authority of *Hippocrates*, who in his Treatise of ancient Medicine, when handling this Subject, speaks in the following Manner. “ If any one
“ talks on medicinal Subjects, and his Discourse
“ is not understood by those who hear him, he
“ himself is ignorant of the Truth, and generally does but utter Words without a Meaning.”

I proposed, in the whole of this Work, to explain myself in such a clear and perspicuous Manner, that every Reader might comprehend my Meaning.

Others may say, Tho’ cold Water, even of the best Kind, is hurtful to the over-heated Soldier, when drank to excess; yet ’tis certain, that by Means of particular Preparations, bad Waters may be render’d good; that tho’ it is not impossible to defend Men against the sudden Changes of the Air, and the Malignity of Ditches, Mines and Fogs, yet it is highly difficult, especially in *Hungary*, to avoid every thing which can injure Soldiers in a Camp, and

to take all the Measures necessary to prevent Diseases and preserve Health.

I answer, That most of the Precautions I have ordered, to me appear easy, whilst the rest are not difficult, provided a little Care and Industry are used. Thus I know experimentally, that not only in the same Camp, but also in the same City of *Vienna* (for in Cities Diseases often happen greatly similar to those of Camps) many Persons, by using the Precautions before laid down, either were totally preserved from Diseases, or seized with those of a slight Kind; whilst others, by neglecting these Precautions, either died, or were seized with dangerous Disorders, which often recurr'd, and were not cur'd without the greatest Difficulty.

'Tis therefore evident, that there is a certain Art of preserving Health in Camps, which however is not known to every one. If Persons of a presumptuous and fool-hardy Turn will be at no Pains to discover this Art, they ought at least to permit others to find it out, and teach the Soldier the most certain and easy Means of preserving his Health in Camps.

Propitious Heaven has furnish'd Man with some Degree of Wisdom and Prudence, which if duly used, would enable us to avoid many Dangers and prevent many Diseases. But no one makes the best use of his Reason, nor tries all
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the Expedients he possibly can for his own Good; or which of us, on every Emergence of Life, summons up to his Assistance all the Prudence of which he is Master? But because we have not Power to prevent *all* the Diseases with which we may be seiz'd, ought we for this Reason to use no Attempts to prevent *some*? This would certainly be a foolish and preposterous Conduct; since tho' our Endeavours should not be crown'd with Success, 'tis still praise-worthy to use our utmost Efforts for our own Preservation.

Some foolish and presumptuous Persons pretend, that God has fix'd the Bounds of every Man's Life, and that it is impossible for him to pass beyond the particular Period fix'd by the Decree of Heaven: Others, no less destitute of Sense and Reason, affirm, that all the Occurrences and Events of human Life are govern'd by Chance or Fortune, and that consequently we ought not to be troubled or concern'd about any thing that happens here below.

O Heaven-daring Mortals, who believe that you can penetrate into the Designs and Decrees of the Most High, and who attempt to divest Man of that Free-will and Prudence which are the greatest Ornaments of his Nature! Whatever Efforts you make to divest yourselves of that Reason God has given you, you shall always find a Necessity for using some Part of it. For whence is it that you eat and drink? Why do

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you

you rise and go to Bed at different Times? Or, why don't you throw yourselves headlong from the Top of a Rock? As for those who use the Authority of the Scripture to support their Opinion, I can confute them, by telling them, that the unfaithful Servant, for having hid the Talent entrusted to him by his Master, was thrown into Prison. But these Objections are of so trifling and unaccountable a Nature, that they hardly deserve a Confutation.

If any one should be angry, that I should on this Occasion be the first who undertook a Work of this Nature, he may, tho' I have preceded him, deprive me of the Glory and Praises of which he is so jealous, by giving better Directions for the Preservation of the Soldier's Health than I have done: And tho' I have preceded him, yet I shall with Gratitude and Veneration thank him for his Labour. Nothing to me appears more barbarous, than to be an idle Spectator of the Calamities of Soldiers, at a Time when War is so necessary. Hence nothing is of greater Importance, than to think seriously on the Means of preserving the Health of Soldiers; for a sick Soldier is an Incumbrance to those who are in Health, and may be compar'd to a Body without a Soul, which the Enemy may with Impunity trample under Foot.

I am not the Author of every Advice given in this Treatise, since several great Physicians have

have contributed to render it as perfect as they possibly could. I have also consulted Persons of all Denominations, in order to find out Truth, and investigate the most easy and efficacious Means of preserving the Health and preventing the Diseases of Soldiers.





P A R T II.

Of the most salutary solid and liquid Aliments, which Soldiers may use in Camps, and which are easily prepared.

AS the Air is of all the other Substances in Nature, the most necessary to the Preservation of Life, I revolved with myself, whether I should not first of all treat of it, and consider the Methods of correcting its bad Qualities, and lay down the Means of guarding against its Changes; but reflecting that a Soldier was more sollicitous about nothing than about Meat and Drink, I judged it expedient, first of all, to treat of the most salutary solid Aliments and Liquors. As warm Water then is of great Service, not only in allaying Thirst, and curing a Sensation of Weight in the Stomach, but also in preparing most of our Aliments in a proper Manner, and a small Time, I shall first treat of its Excellencies and Advantages; then I shall, in different Chapters, consider the most salutary Aliments, and such as are at the same Time most easily prepared. After that, I shall point out the Method of correcting the bad Qualities of Waters; and, last of all, consider some medicated

icated Waters, which may be compos'd in a short Time, and at a small Expence. The Reader will all along perceive, that I lay down a very easy Method, which is put in Practice without any great Expence, cannot divert the Soldier from his Duty, and is highly efficacious both for preventing and curing his Diseases.

C H A P. I.

Of the Use and Properties of warm Water.

TH E Soldier may reap so many and considerable Advantages from the Use of warm Water, provided it has not bad Qualities, and this Water is prepared with so much Ease and Expedition, that it ought to be recommended to those who use it for boiling Aliments, to keep a large Vessel full of it near the Fire, that the Soldier who wants Fire of his own, may, if he has a Mind, serve himself with it, without either Expence or Delay. I say without Expence; for as a Family kindles a Fire for other Purposes, this Water costs absolutely nothing at all; and ought, on account of its salutary Nature, to be given gratuitously to the Soldiers, as often as they have Occasion for it.

I shall not here spend Time in treating of the external Use of warm Water, enumerating the Cases in which it is beneficial, and specifying the particular Emergencies in which the Antients employed it; but I shall only observe, that I have found from Experience, that all the Qualities ascribed to Coffee, Tea, and some other celebrated Liquors, are, for the most part, no more than the Effects of warm Water; as is sufficiently obvious to those, who though they often eat dry Coffee, yet do not find themselves inspir'd with that Vivacity and Liveliness of Spirits produc'd by drinking Coffee prepared with warm Water.

The same Vivacity and Liveliness of Spirits, are observ'd to be produc'd only by taking a few Spoonfuls of hot Water; for when it is only tepid, it is by no Means sufficient to produce such an Effect.

Tho' Chocolate has more Virtue than Coffee when eaten dry, and without being diluted with Water; yet it does not produce the same happy Effects as when dissolv'd, and intimately mixed in warm Water. 'Tis therefore sufficiently obvious, that the Effects of Chocolate ought to be principally ascrib'd to the warm Water, which by itself, and without any Mixture, rarefies the Blood, inflates the Veins, and renders People
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not only more chearful, but also better disposed for carrying on any Kind of Business.

We also ascribe many good Effects to Broths prepared with Flesh ; but we ought, in Justice, to attribute the most considerable of these Effects to the warm Water, which constitutes the principal Part of such Broths. Flesh-broths are often highly prejudicial, because they contain a large Quantity of viscid Particles extracted from the Fleshes ; and if we permit the Water of such Broths to evaporate, there will remain nothing but viscid Matter, and perhaps a small Quantity of Fat, if the Flesh has been fat of which the Broth was prepared. For this Reason, some Physicians often order Broths which contain but a small Quantity of the Substance of the Flesh. Such Broths the *Italians* call *Brodi Lischi* ; that is, Light Broths (*a*) ; which consist of a large Quantity of Water, slightly impregnated with the Substance of the Flesh, or any other Thing boil'd in them.

As for the viscid Part of the Flesh separated in boiling, when used all alone, it will prove more hurtful than salutary, in those Cases in
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(*a*) These Broths are commonly called Waters ; and 'tis customary to order Veal and Pullet Waters, for Patients whom we intend to purge and nourish gently.

which the warm Water alone would have been found beneficial.

I do not so highly extol the Virtues of warm Water, however uncommon, as to depreciate and condemn the Goodness of all Aliments boiled in it; neither have I any Intention to introduce the Custom of the Antients, who drank Water as hot as they could possibly bear it, in order to quench their Thirst, and renew their Strength and Spirits; but I'm certain that warm Water is very proper for Soldiers, who in Camps cannot have hot Aliments so frequently as they have in Garrisons; and that it may very advantageously be substituted in the Room of other Aliments immediately taken from the Fire, and which still contain a large Quantity of igneous Particles, especially since one Person can prepare warm Water for a great Number of Men. That the Soldier may the more easily comprehend my Meaning, I shall range, under distinct Articles, the various Advantages to be reaped from the Use of warm Water.

Water, then, as warm as one can drink it, allays Thirst, and when taken gradually, and by Spoonfuls, cures Crudities and a Sensation of Weight in the Stomach.

It rarefies the Blood, inflates the Vessels, renders a Man more vigorous, and better disposed for Business of every Kind. It also
mitigates

mitigates and allays most Species of internal Pains.

Warm Water penetrates and warms all the Parts of the Body; dilutes and dissolves any obstructing Matter it finds in the Vessels; diminishes the Force and Energy of those Causes which are proper to produce Disorders; and, in a Word, corrects and temperates every Thing of an excessive Quality in the Body.

Warm Water drank at Night, procures quiet and sound Sleep. With warm Water we may also in a short Time prepare, not only various and salutary Aliments, but also many medicated Waters, highly proper for removing Diseases and preserving Health.

Warm Water is a proper Vehicle for many Medicines, both of the preservative and curative Kind. As it is often expedient to use the Powders of Mint, Marjoram, Penny-royal, Pepper, Nutmeg, Cloves, Balm, Rue, Bay-berries, Coriander and Fennel Seeds, Liquorice Roots, the Seeds of Contrayerva, Anise and Radish, Sanders, Tartar, Sena Leaves, and many other Medicines; warm Water may be used as a proper Vehicle for all these, and an infinite Number of other Remedies.

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Tho' I have said thus much of the Virtue and Advantage of warm Water, I shall nevertheless speak of its Use in the subsequent Chapter, as also when I come to consider medicated Waters. I must beg of the Reader, not precipitately to condemn what I have advanc'd concerning warm Water, before he makes a Trial whether it is true or false.

C H A P. II.

Of the most salutary Aliments which may be easily and expeditiously prepared with warm Water.

TH O' in this Chapter I intend to treat of such Aliments as are most easily prepar'd ; yet I must insist a little farther on the Virtues and Use of warm Water, by Means of which we may, in a Moment, prepare most of the Aliments proper for the Preservation of Health. Many of these Preparations might be specified, but it is sufficient, for the Purposes of the Soldier, to enumerate only a few, that he may plainly see that all the Aliments he uses, may be either hurtful or beneficial, accordingly as he eats them, either with warm or cold Water.

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Let a Man, for Instance, of an ordinary Constitution, use Bread, Cheese, and good Water, without any other Aliments, for many Days successively ; I affirm, that if he has before been accustomed to warm Aliments, he will, by such a Change, soon be seiz'd with some Disorder. But if he should cut his Bread in Slices, put his Cheese upon it, pour upon the whole as much boiling Water as the Bread can imbibe, and eat this Preparation warm, he will hardly be subject to any Diseases, even tho' he should be reduc'd to a Necessity of using such Foods for a long Time.

If a Man has Bread, together with Bacon or the Fat of Beef boil'd before, for the Sake of their better Preservation, and if he uses these Aliments with Salt and good Water, I am certain that this Species of Food will produce Diseases, and that the previous boiling of the Bacon and Fat, is a Circumstance by no Means sufficient to prevent them. But if he pours boiling Water upon these Substances, in order to melt the Fat and soften the Bread, and uses this Aliment warm, it will hardly lay a Foundation for Diseases.

In like Manner, if Soldiers, instead of the Fat of Beef, Pork, or Mutton, have Butter or common Oil, they will enjoy good Health if they prepare these two last with warm Water ;
whereas

whereas they will be seized with various Diseases, by using them without it.

It is often beneficial to a Soldier who has been long exposed to Colds and Fogs, to rub a Plate with raw Garlick, then put Slices of Bread upon it, pour upon the Bread hot Water, in which he has dissolv'd a little Salt and Butter, and eat the whole hot.

It is also expedient to add to the Aliments already mentioned, the Powders of Penny-royal, Marjoram, wild Thyme, or any other odoriferous Plant, or the Powders of the Seeds of Dill or Coriander, according to the Person's Taste.

If the common Soldier throws powder'd Pepper, Nutmeg, Cloves, Cinnamon, or Ginger, on Slices of Bread, and then pours upon the whole warm Water, in which a little Butter, or some fat Substance has been dissolv'd, he obtains an Aliment more grateful and salutary, than most of those generally used by his Officers.

If the indigent Part of Mankind knew how easily they might provide for their real Wants, and were convinc'd of the little Use of the sumptuous Dishes serv'd up to the Tables of the Rich and Opulent, they would neither complain of Nature as unjust, nor bear a groundless
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Envy to Persons plac'd in more happy and flourishing Circumstances than themselves. *Epicurus* divided all the Things which a Man could use into three Classes. In the first Class he plac'd those Things which were not only useful, but also necessary; in the second he placed those Things which are useful, but not absolutely necessary; and in the third, such Things as are neither useful nor necessary. He asserted, that the Things belonging to the first Class might be obtain'd without much Trouble; those belonging to the second, with more Difficulty; and those appertaining to the third, (such as a golden Cup to drink out of, when a Person has the Use of a common glass or wooden Vessel) acquired with the greatest Labour of all. As for my own part, I have frequently observed that the Rich, who are too solicitous to obtain such Things as are useful but not necessary, or perhaps such as are neither the one nor the other, often want such Things as are both useful and necessary: Whereas in the humble Cottage of a poor Man, I have seen every thing necessary for Life at hand.

If a poor Man has but common Prudence and Industry, which are necessary in every Station of Life, he may render himself as happy as the Condition of human Nature will admit of. *Epicurus* was a Man of excellent Sense, and knew perfectly well that Nature only stands in need of a few Things, and that those Things are easily pre-

prepar'd. But if we accustom Nature to Superfluities, we render her infirm, without any Necessity augment her Cravings, and at last load her with a numberless Train of Calamities.

I now return to my Subject; but before I proceed to the next Chapter, in which I shall make some Remarks on Bread, I think it expedient to undeceive those who are afraid to season their Aliments with the Powders of Penny-royal, Marjoram, Wild Thyme, Pepper, Nutmeg, Cloves, or other Aromatic Substances, because they pass for hot, and are therefore thought more hurtful than beneficial. But this is a groundless Opinion, and those who embrace it are but little acquainted with the human Constitution. I therefore argue from their own Concession, and assert, that these and other Aromatics being of an hot Nature, augment the natural Heat, resist Putrefaction, and are consequently beneficial. Experience has long ago convinced Labouring Men, that all these Herbs and Aromatics were advantageous and serviceable to those over-heated and exhausted by Fatigue and Toil. Thus *Virgil*, in his Eclogues, expresses himself in the following manner:

*Thestylis & rapido fessis messoribus æstu
Allia serpillumque herbas contundit olentes.*

Thestylis prepares for the Labourers exhausted by intense Heat, Garlick, Wild Thyme, and other odoriferous Herbs.

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With these Herbs the Reapers and Labourers, before the Days of *Virgil*, recruited their drooping Spirits; and they are still used for the same Purpose by those, who, at the Mouth of *Tyber*, are, during the hottest Months of the Summer, employ'd in preparing Salt for the Use of *Rome*; since these People are fonder of a Garlick Head, than of the most exquisite Delicacies.

C H A P. III.

Containing some Observations on Bread.

I Have here no Occasion to explain wherein the Goodness of Bread consists, since that Task is already perform'd by *Hippocrates*, perhaps because in his Days many Persons were ignorant of the Marks by which to distinguish good Bread from such as is bad. But every body now knows the Difference; and those Persons who would think it a Reproach to make bad Bread of good Meal, might with a little more Care and Attention, even make good Bread of Meal that is not perfectly good.

But without insisting longer on this, I shall only observe, that however good Bread may be, yet it easily acquires a bad Smell, and becomes mouldy, especially in moist Places. But it acquires

quires these bad Qualities the sooner, and in the greater Degree, the worse it is bak'd.

Every one is not easily sensible of its bad Smell for some few Days, when it is bak'd ; for this Disposition to Corruption and Mouldiness does not discover itself immediately. It is however less salutary ; and if this bad Quality should augment, which it always does with Time, the Bread becomes highly prejudicial.

This Fault is entirely corrected, if before we use the Bread, we cut it into thin Slices, and toast it before the Fire. Neither is it a Circumstance of Indifference to the Health of a Soldier, whether he uses his Bread thus prepared, whether it is well or ill bak'd, as every one, who will make the Trial, may be easily convinced.

The Soldier ought indispensably to toast his Bread, if it is ill bak'd or old ; but if it is new, and has not already contracted any Mouldiness or bad Smell, he needs not use this Precaution, provided he cuts it into Slices, and boils it in Broth or in Water with a little Salt and Fat.

Bread which is excessively mouldy ought not to be used at all : But if the poorer Sort of Soldiers are reduced to a Necessity of eating such as is not very mouldy, it is not sufficient to soak it in Water, since after this it may remain very prejudicial ; but 'tis also requisite to cut it in Slices
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and toast it before the Fire, by which Means they will correct most of its bad Qualities, and prevent the Diseases produced by the Use of bad Bread.

C H A P. IV.

Of other salutary Aliments which are expeditiously prepared, and may be used by Soldiers.

THE Aliments mention'd in the second Chapter of this Part, are highly salutary; and if warm Water, and good Bread, whose Faults are previously corrected, are at hand, may be prepared in a very short Time. There are also many other salutary Aliments, which tho' they cannot be prepared so soon, do not yet require a very long Time.

Of this Kind are Eggs, which may be dress'd in different Manners; but the most commodious for the Soldier, is to drop them into boiling Water, in which is Salt, Butter, Oil, or some other similar Substance. By this Method the Eggs will be boil'd in a Moment, and the Soldier putting this Ragoût on his Bread, will have a salutary Nourishment, which a greater Number of Eggs prepared in another manner would not afford him. He may sometimes put into these Eggs the Powders of Pepper, Marjoram, or Nutmeg, as he shall think most proper.

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Most Herbs are also boil'd in a very short Time, such as Lettuce, Borrage, Endive, and some of the Species of Succory; into which, if he pleases, he may put an Egg or two.

'Tis to be observ'd, that the Herbs last mention'd are less beneficial for Soldiers than those of the aromatic Kind; but the best of all, are such as the Physicians call Antiscorbutic, as the various Kinds of Smallage, Parsley, Radish, Wild-Radish; the various Sorts of Turneps, Mustard, Cresses, and Numbers of others.

Those who inhabit the Mountains of *Calabria*, which are cover'd with Snow almost the whole Year, toast their Bread, as also their Bacon, which they press between two hot Toasts, in order to make the Bread imbibe the Fat express'd from the Bacon; and they enjoy good Health by Means of this Nourishment, which is easily prepar'd, and the only Species of Aliment they use during a considerable Part of the Year.

We may also prepare various Aliments with different Species of Meals, which will be soon boil'd, if we have boiling Water, and use but a little Care. 'Tis better that Aliments of this Kind should be pretty thin than too thick; for in the former Case they can do no Harm, whereas in the latter, the Meal will be boil'd with
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more Difficulty, and easily become prejudicial. We ought also, when we throw the Meal into the boiling Water, to stir it continually, lest it should be form'd into Balls or Concretions, which would prevent its boiling, because the Water more difficultly penetrates the Parts of these Concretions, which frequently in the Middle contain nothing but dry Meal. This especially happens, when we do not throw the Meal in by little and little, when we do not scatter it, and when we press it too strongly in the Hand before we throw it in. If the Meal should, notwithstanding these Precautions, be form'd into Concretions, they must be broken with a Spatula or wooden Spoon, that the Water may the better penetrate their Parts, and the whole be reduced to one uniform and perfectly boil'd Substance.

Various Sorts of Meal may be used, as that of Wheat, Millet, Barley, *Indian* Corn, Rice, Oats, Pease, Beans, and several others, all of which when ground are easily boiled.

To these Meals, when boiling, we may advantageously add some fat Substance, or even the Powders of Marjoram, Rosemary, Pennyroyal, or Pepper.

'Tis to be observ'd in general, that all Aliments are very easily boil'd, if they are cut into small Pieces: The hardest Substances, which in order to boil them require five Hours, may be
boil'd

boil'd in less than half an Hour, by cutting them thus small. They may be also still boil'd sooner, by bruising them after they are cut into small Morfels.

The Soldier often eats salted and smoak'd Fish, without boiling a second Time; but these Aliments will do him no Harm, or at least much less than they otherwise would do, if he is careful to cut them into small Pieces, and chew them well before he swallows them.

C H A P. V.

Of the Aliments which require a longer Time to boil, and of the Nourishment of the Soldier who is at no great Pains to preserve Health.

THERE are various Methods of preparing salutary Aliments, besides these already mention'd, and which may be used when the Army is not on a March, but lies encamp'd for several Days. We ought not therefore to reject the Use of the Aliments we have not hitherto mentioned, because they require more Preparation and longer boiling; for it is by no means necessary that every Soldier should daily so employ his Time in dressing them, as to neglect his Duty. We ought, if we are desirous of Victory and Success, to do every

every thing in our Power in order to preserve the Health of Soldiers, because a sick Soldier becomes a Burden both to his Officer and Companions.

We ought therefore to take Care, that the Soldier who is ignorant of the Method of preserving his Health, should from time to time use salutary, hot, and well-prepar'd Aliments, in order to preserve Health as much as possible.

We may easily succeed in this Design, since 'tis natural for all Men to embrace and use those Things which tend to their Profit and Advantage.

If in every Regiment, for Instance, a single Man prepared salutary Aliments, and sold them at an easy Rate, every Soldier, however little attentive to the Preservation of his Health, being oblig'd by the Calls of Nature to eat, and allur'd by the Cheapness of the Food, would voluntarily purchase some of it; and having once found that it did him good, would afterwards use it as often as he had Occasion.

But here two Difficulties occur, the first of which is, that the Aliments we mention cannot be sold at a very low Rate in Camps; and the second, that the Soldier who is little solicitous about his Health, would either purchase none at all of them, or at least very rarely; so that his bad Regimen will subject him to Diseases.

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The celebrated *Capucci* effectually answers these Objections, and pretends that these Inconveniencies can never happen, provided none but honest Men, who disdain to make a Prey of the Soldiers, are tolerated to prepare and sell Aliments. He also affirm'd, that in Camps it was an easy Matter to sell salutary Aliments at a low Rate, and in order to support his Opinion, reason'd in the following manner.

If, says he, a Soldier who has common Prudence, consults his own Interest, and is careful of his Health, perceives when he buys Aliments, that he lives commodiously for a certain Sum a Day, he will think himself well used when he observes that another, who has not so much Oeconomy, and is not so careful of his Health, pays a great deal more to another Cook for an equal Quantity of Aliments. And if a Cook serves only twenty Soldiers, tho' he is sure to serve a great many more if he uses them well, his Profits will be considerably greater than the daily Pay of a common Soldier, who exposes himself to the most terrible Dangers for a mere Trifle. A Soldier, continues *Capucci*, has a certain Instinct as well as a Dog, who is taught by Nature to be fond of those who are kind to him. The Soldier then will necessarily go to the Cook who serves him at an easy Rate; and if he is Fool enough to do otherwise, the Loss of Health
he

he sustains will be a sufficient Punishment for his Folly. Princes ought not, continues that Author, to be persuaded (either by ignorant People, or such as have a greater Attachment to their own Interest, than to the publick Good) that in Camps 'tis impossible to supply the Soldiers with salutary Aliments. The Establishment and Regulations I propose, would however produce this happy Effect, if the Suttler took his Aliments from the first hand, and was by the Officers restrain'd from gratifying an Avarice, no less barbarous than dishonourable. *Capucci* gives Accounts of this Kind, and adds, That nothing is more capable of alienating the Affection of the Soldier from his Officer, and influencing him to Sedition, than the being ill fed ; whereas on the contrary, nothing more effectually secures the Attachment of the Soldier to his Officer, than the Care and Industry of the latter, to consult the Good and Interest of the former. He commends the Prudence of *Cæsar*, and his Care at stated Times to distribute necessary Provisions among his Soldiers, whilst his Armies lay in *Gaul, Spain*, and other hostile Countries.

Upon the whole I am persuaded, that it is not only possible, but even easy, to find a Man who can not only prepare Food for a great many Men, but also sell it at an easy Rate ; because Soldiers find it more commodious to buy their Food dress'd, than to prepare it themselves.

The Aliments to be prepared are those most commonly used, especially the various Kinds of Fleshes, Grains and Liquors, to which something may be added in order to correct the bad Qualities they may have, and render them not only nourishing, but also proper to prevent Diseases and preserve Health. 'Tis with this View that we ought to put Garlick and some Leaves of Rosemary among Pease and Lentils, Powder of Origanum among Beans, and Pepper among Rice.

Ten Pounds of Rice boil'd in Broth, or in Water with some Fat, are sufficient for at least fifty Soldiers. It were also to be wish'd, that in every Country the Pay of Soldiers should be so proportion'd, as to be sufficient to procure Aliments necessary to support their Strength and preserve their Health.

C H A P. VI.

The Manner of correcting the bad Qualities of Waters.

THE Question has been often ask'd, Whether it would be better to want Wine or Water? And tho' People have always been of different Opinions in this Respect, yet the Dispute

pute is easily decided ; for tho' Men, much accustomed to Wine, think it impossible to live without it, yet Experience has convinced us, that Water is more useful than Wine. Many ancient Nations lived without Wine, and in some Countries, at present, the Use of it is not known ; but no Nation can possibly live without Water. We may make Wine with the Juices of various Herbs and Fruits. We may also with Water prepare several Liquors, which in Strength are equal to Wine, such as the Beer of *England*, *Germany*, and several other Nations ; but without Water we could prepare no Liquor of this Kind. Tho' it should be said, that we could prepare various Liquors by distilling Fruits and Herbs, yet 'tis certain that without Water we could not obtain a Quantity of these sufficient to extinguish the Thirst of Men and other Animals. 'Tis therefore obvious, that it is far better to want Wine than Water, tho' 'tis certainly most agreeable to be bless'd with both.

Tho' Wine is daily drank, and proves salutary to those who use it, yet I shall not treat of it expressly, and shall say but little of it as a Medicine ; neither shall I insist upon Beer, however useful a Liquor it is found to be. But, as the Armies of the Emperor *Leopold* I. were in *Hungary* seized with various Diseases, I am therefore induced to believe, that the bad Qualities of the Waters ought to be principally considered in the Enumeration

meration of the Causes which produced them ; for which Reason I shall in this Chapter treat of the various Species of Waters.

I have often thought, during the Course of this Work. that the vast Quantities of Water found in *Hungary*, might be a Reason why the Soldiers had not such as was good ; for if they had not found Water every where, they would have perhaps been at more Pains to find it : And Historians inform us, that in great Scarcities of Water, the Soldiers have found such as was excellent and salutary by digging Wells.

I am not ignorant, that in Camps Wells have been sometimes digg'd which have afforded bad Water, but this might possibly be owing to the ill Contrivance of the Wells ; for I have been inform'd, that there are Wells, whose Waters, when immediately drawn, are turbid and unwholsome, but by standing a Night become transparent, and are entirely destitute of every bad Quality. But when vast Crouds of Soldiers come to draw Water from a Well, in which there is but little Water on a muddy Bottom, the Fountain must necessarily become turbid, and its Waters noxious.

'Tis therefore obvious from what has been said, that there are good Waters in *Hungary* ; and that, if the Quality of the Soil does not prevent

vent it, there may be excellent Waters found in the very Camps where the Soldiers have had such as were very bad and prejudicial to Health.

It also appears from what has been said, that unless the Earth which constitutes the Bottom and Sides of the Well, is extremely salutary, such as that of *Samos* or *Lemnos*, the Waters when violently agitated, will become prejudicial, heavy, and ill-smell'd. This I have often observed at *Naples*, *Rome*, and *Venice*, and I believe it is so every where else. I have also seen Wells whose Waters were very good in Winter when they were high, but became bad in Summer when they were low. I have also seen Wells which afforded good Water if it was drawn with Calmness and Precaution, but was turbid and of a bad Taste when agitated so as to raise the Mud which had subsided to the Bottom.

This does not happen in Wells built with Mason-Work, such as those in the Palace of the Doge of *Venice*, the Brinks of which are Copper, the Sides Bricks, and the Bottom a hard and polish'd Stone. During the Summer of 1683, which was a very dry Season, the Inhabitants could only obtain small Quantities of Water from those Wells; and as vast Numbers of People resorted to them for the Water, they soon became dry. This Water was however salutary and pure, because in drawing it nothing was rais'd

from the Bottom which could mix with the Water in order to render it nasty or turbid ; whereas in some Wells which are not built with such Care, the Mud and Nastiness deposited at the Bottom being agitated, render the Water prejudicial and impregnated with various Sordes at the Bottom.

Another Reason, much of the same Nature with the former, is, that the best Waters are drawn from Wells whose Waters are highest. 'Tis demonstrable, that there is not an exact and perfect Resemblance between the Parts of Bodies, since some are heavy, others light, and others entirely different from each other in Figure and Bulk. This Observation holds true of Water, tho' the Thing is not easily perceptible to the Senses. When Liquors are considerably high in Vessels, this Separation is the better made, so that the similar and homogeneous Parts are collected into one Place. This appears evidently in Olive Oil, whose most pure and light Parts possess the superior Part of the Vessel, whereas such as are gross and heavy subside to the Bottom. Of all the Parts of the Oil the lowest are the worst ; and below these are the Lees, which are still of less Value. The same thing in my Opinion happens to Water, since the most pure and light Parts separate most easily where there is a great deal of Water, and since all the homogeneous heavy Parts are collected into one Place,

the

the former must necessarily possess the superior Part of the Well or Vessel.

Hence it follows, that in Lakes and Marshes the best Waters are found on the Surfaces of the deepest Parts, that is, towards the middle. There are also other Reasons why the Waters at the Brinks of Lakes are bad ; for without mentioning the various Occasions on which the Earth and Dirt on their Brinks are dug up, the adjacent Soil being warm'd by the Rays of the Sun, and alter'd by the Changes of the Air, always communicates some bad Qualities to the Waters. In like manner the Waters near the Brinks being shallow, are less capable of defending the Earth below them from the Changes we have now mention'd, which also contributes to render them bad. These Observations may also be applied to the Waters of Rivers.

'Tis false that the Waters of Lakes and Rivers have no Motion, and that 'tis this which renders them prejudicial to Health ; for without insisting on their intestine Motion, they have always some Vent or Disembogement, tho' conceal'd ; so that nothing can go out of them, but all the Waters, or at least such as are higher than the rest, must be successively removed : Besides, Lakes and Marshes often receive fresh Waters, and in most Ponds the Waters acquire no bad Quality, altho' they appear to have no Motion.

As we have mention'd the Wells of *Venice*, it will not be improper briefly to explain how the Waters come into them perfectly purify'd. These Wells then have all around them a large Quantity of clean Sand, which the *Venetians* call the Sponge of the Wells. This Sand is encompass'd with a Kind of Fence, consisting of fat Earth, which may be look'd upon as a Species of light Chalk, and which, when dried, is a very fine Mould, which hinders the salt Water from penetrating into the Sand. The Canals or Pipes are so disposed, that the Rain and Water brought from the adjacent Rivers in Boats, flow thro' the Sand, and thence passing thro' the Sides of the Well, fall clear and pure to its Bottom. By this Means many of their bad Qualities are corrected, especially their Taste and Smell of Pitch and Tar; for I have often observed when I was at *Venice*, that the Waters brought in small pitch'd Boats, assum'd the Taste and Smell of that Substance in three or four Hours. But this Taste and Smell was lost after the Water had passed thro' the Sand. This Circumstance is sufficient to convince us, that this is a very efficacious Method of correcting the bad Qualities of Waters.

At *Rome*, in the Palace of Cardinal *Sacchetti*, there is a Well all surrounded with a large Quantity of Pebbles, thro' which the Water of the *Tyber*

Tyber passes, and leaving among them a great deal of Sordes and Nastiness, enters the Well pure and clear.

Nature also generally uses the same Method of purifying Waters. Thus not far from the Foot of the Hill call'd *Monteflorido*, there is a Lake form'd of the Rain and Snow-Water descending from that Mountain: This Lake is full of Fishes, but the Waters nearest its Brinks are heavy and prejudicial to Health. In descending however towards the City of *Serravalla*, we find Springs whose Waters are excellent. These are the same Waters with that of the Lake, which are purified by passing thro' the Mountain. There are in like manner at *Munick* several Wells, the Waters of which are considerably salutary, and all of them convey'd from the *Iser*, which is prejudicial to Health; but being filtrated thro' a stony Ground, they become pure and salutary. There are also at *Vienna* various Springs of different Goodness, tho' they all proceed from the *Danube*; and this Difference is produced by the Variety of the Soils thro' which they are filtrated. But if the Waters of these Springs are agitated, they assume a far worse Quality.

Having deliver'd my Sentiments upon the Causes of the good and bad Qualities of Waters, I now come to enquire into the Manner of procuring salutary Waters for the Soldiers.

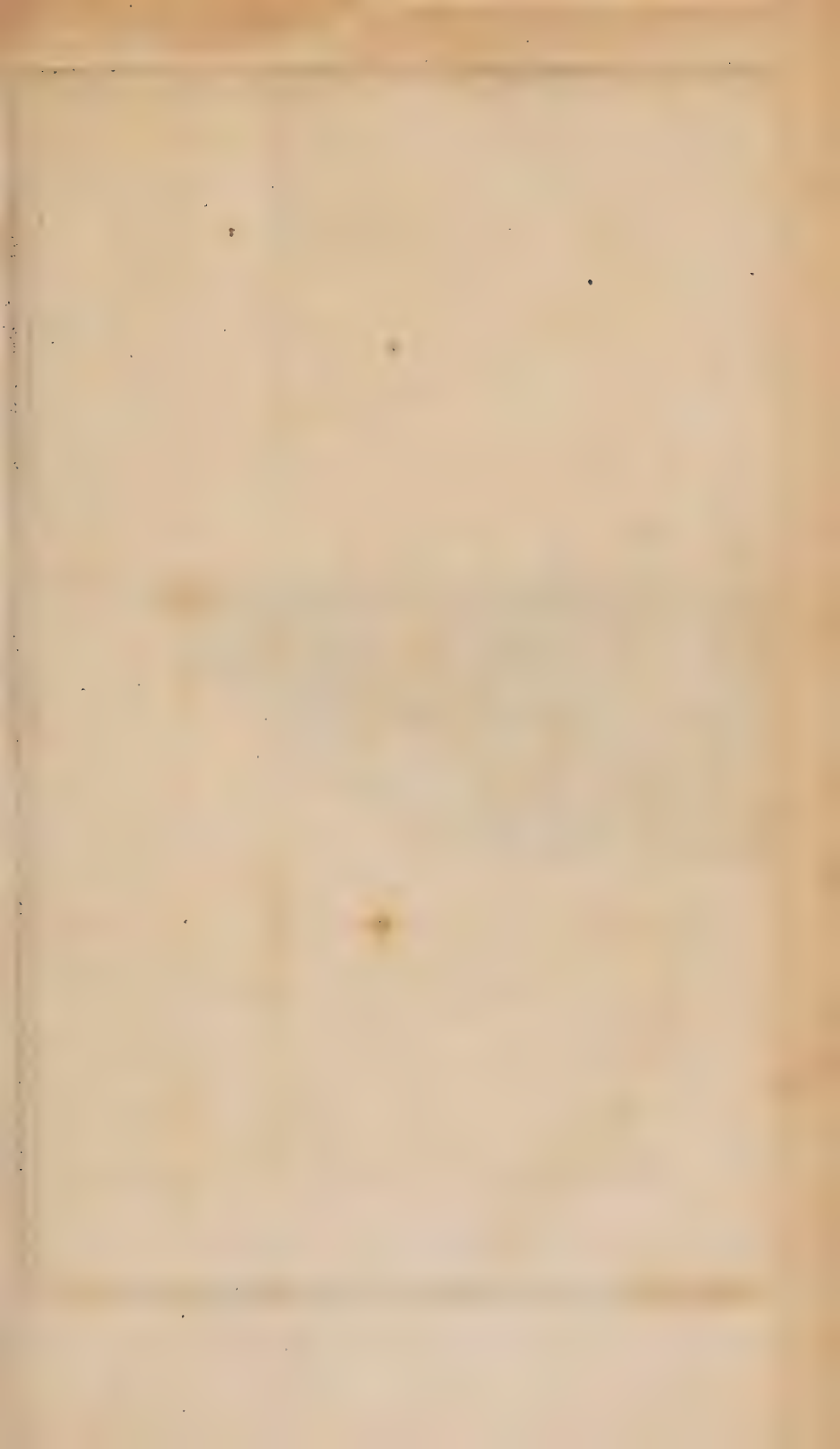
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I shall

I shall not here speak of the Method of rendering Sea-Water fresh, since tho' this would be of great Advantage to Sailors, yet I am not convinced of the Truth of the Thing. Besides, the Land-Soldier has no Occasion for Sea-Water rectified and corrected. I pass over in Silence the Means of correcting Water in the Camps of *Hungary*, which are difficult to be practised, as well as a great many other Things, purely of a speculative Nature, and only confine my self to those which may be easily put in Practice. These Methods of correcting Water shew us, that the Industry of Man can produce very surprising Effects; since we find that in the same Place the industrious Man may have a Well of good Water, where the inactive Sluggard has one that is very bad. This Industry consists in knowing most effectually how to imitate the Operations of Nature. The Method of proceeding is as follows.

Shew me a Plot of Ground near the *Danube*, or any other River or Marsh, I can, supposing the Water of this Plot of Ground to be bad, render it good. In like manner, if I have a Well whose Waters are turbid and prejudicial to Health, I can render them clear and salutary.

In any Part then of the *Danube*, let there be a little Boat A B, of a solid Construction, and



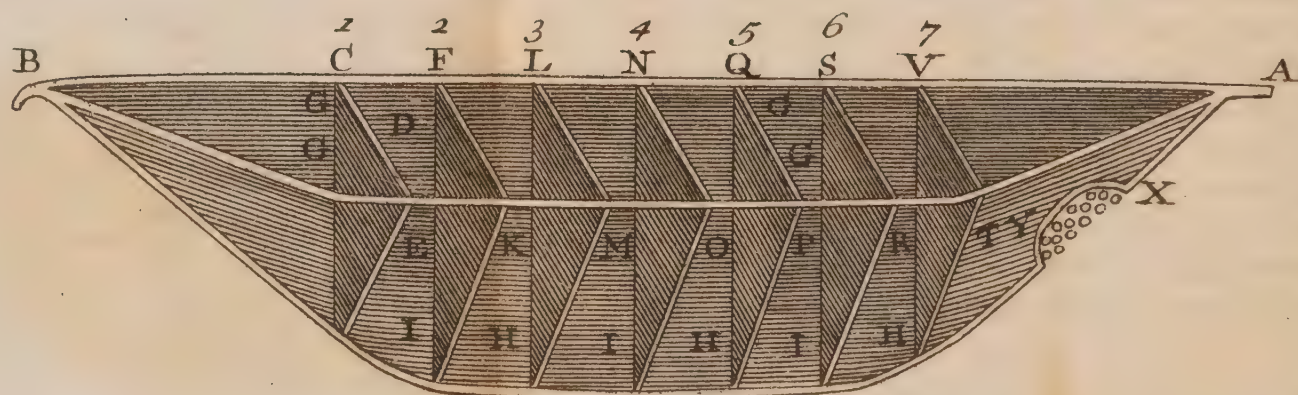


Fig. I.

and so built without Pitch, that no Water can enter. Divide this Boat with Dales into various Divisions, which we shall call Reservoirs, because they answer the same Purposes with the Reservoirs, in the Conveyance of Water. Such are the Parts CBE, CR, FM, LO, NP, SI, and TAV.

The cross Partitions ought to be of two Kinds: The first ought to be contrived in such a Manner, that when the Water is in the Reservoirs it cannot flow to the Stern, but thro' the Funnels G, which ought to be applied to the Tops of the Partitions. Such is the Partition CDE, which shuts up the Passages thro' which the Water might enter into the Reservoir, except thro' the Funnels G. The Partitions of the second Sort ought to be made in such a Manner, as every where to oppose the Water tending to the Stern, except by an Aperture at the Bottom; that is to say, this Species of Partition ought not to touch the Bottom of the Boat: Such is the Partition F H I K, which hinders the Water from passing from the Stem into the Reservoir C D, except by the oblong Aperture H I at the Bottom. These Partitions ought to be placed alternately in the following Manner: The first, C D E, which is towards the Stern, ought to be of the first sort; the second, F H I K, ought to be of the second sort; the third, L M, ought to be of the first sort; the

the fourth, N O, ought to be of the second sort, and like the second ; F H I K ought to have an Aperture like H I. Thus all the Partitions mark'd with an odd Number ought to be entirely like the first, and those mark'd with an even Number ought to resemble the second, in such a Manner, however, that the one nearest the Stem may be of the first sort. Such is the seventh, which has one or more Funnels G.

There must also be in the Stem a Plate of Iron X Y, perforated with many small Holes, thro' which the Water of the River must enter into the seventh Reservoir A T V.

All the above-mentioned Reservoirs, except the two last, C B E, and A T V, of which the one is at the Stem, and the other at the Stern, ought to be filled with Pebbles and Sand, clean and well wash'd. The Plate of Iron, as well as all the Funnels, ought to be situated below the Surface of the Water.

Things being thus disposed, the two Funnels G G, which are in the first Reservoir, near the Stern, will yield us in the Boat two Springs, whose Waters will be much more pure than that of the River, which I prove thus :

The Waters of the River, by the Construction of the Boat, cannot enter into her, except by
the

the Apertures of the Iron Plate in the Stem, into the eighth Reservoir ; for which Reason all the Bodies which float on the Surface of the Water, as well as those which are too large to pass thro' the Perforations of the Iron Plate, will find no Access into the Boat ; the Waters therefore contain'd in the Stem will be more pure than those of the River. But those Waters being less agitated in the eighth Reservoir than in the Channel of the River, will depofite to the Bottom a Part of the Sordes they contain, and the purest Part being uppermost, will descend thro' the Funnel of the seventh Partition, which is also below the Level of the Water in the seventh Reservoir S T ; or whilst the Water descends, it will leave a Part of its Sordes in passing thro' the Pebbles and Sand, of which it is full. This Water, passing afterwards thro' the Aperture at the Foot of the sixth Partition, will be still more purified in ascending thro' the Pebbles and Sand, and will fill the sixth Reservoir Q R. When this Water is arrived at the Funnel G of the fifth Partition, it will fill the fifth Reservoir P N, whose Water will be more pure than that of any of the former Reservoirs. This Water, in passing slowly thro' the Sand and Pebbles, will still depofite some more of its Impurities, and ascend thro' the Aperture H I, which is at the Bottom of the fourth Partition, in order to fill the fourth Reservoir. It will also descend thro' the Funnel G of the third Partition, in order to fill the
third

third Reservoir ; and passing still more pure thro' the Aperture H I of the second Partition, it will there ascend, and thro' the Funnels G G which are in the first, it will yield two Fountains in the first Reservoir C B E, whose Water will be very pure and salutary, which is the Thing proposed to be obtained.

What I have said appears so plain and evident, that I should put an Affront on the Reader's Understanding by attempting a farther Illustration of it. It is however proper that I should make some Observations, which will contribute to demonstrate the Usefulness and Commodiousness of this Machine for purifying Waters.

The smaller the Pebbles, and the larger the Sand, the better they are ; but there is no Necessity for being over-nice in this Respect, since 'tis sufficient that they be both clean.

It is proper to place Pebbles, rather than Sand, near the Funnels of the Partitions.

It is also expedient to place the Funnels in a diagonal Situation, that the Water may pass thro' a larger Space, in order to arrive at the first Reservoir, from which the Soldier is to take it.

The larger the Boat and the more numerous the Partitions are, the more the Water will be purified.

It

It is to be observed, that if no body takes the Water from the first Reservoir, which will happen during the Night, it will be fill'd with Water as high as the Surface of the River, and during that Time the Waters in each Reservoir will be at Rest, and deposite the Impurities they contain. If any one takes a Pail of Water from the first Reservoir, the Waters of all the rest will be put in Motion and flow thro' their proper Apertures, till the Quantity of Water taken out of the first is restor'd, and then all the Water in the Boat will be at Rest. 'Tis to be observed, that what I have said only holds true when the Height of the Water in the River does not change, supposing the Boat does not float in it, but is placed near its Brinks; for by changing the Construction of the Boat never so little, it would float on the Water.

If we intend that the first Reservoir should not be fill'd, we need only stop up the Funnels of the first Partition, by which Means all the Water in the other Reservoirs will remain at rest, and deposite their Impurities much better.

We may easily cleanse the Reservoirs, two by two, and make in them the Reparations necessary, without interfering with the rest, by stopping up the Funnels of the Partitions of the first Kind.

This

This Machine may be easily built, and placed in any Part of a River. In like manner after having unloaded the Boat of a Part of the Pebbles, and Sand, and Water, we may by stopping the Perforations of the Plate X Y, convey her from one Place of the River to another. The Boat may also be built in such a manner as to float on the River, and be convey'd from one Place to another, without having any Part of her Burden unloaded, by contriving the Perforations in such a manner that they may all terminate in one, which being shut up, will hinder the Water from entering.

The same Machine may serve to purify the Waters of Lakes and Marshes, if we are obliged to have Recourse to them, by placing the Machine near their Brinks, as is directed with respect to Rivers.

If we dig any kind of Earth to the Depth of a Fathom or two, and find Water, which tho' not good, is yet capable of being purified, we may advantageously employ such a Piece of Mechanism as we have described; so that by this Means we can always have good Water. For it is evident from the Construction of the Machine, that by its means good Waters become excellent, on account of their passing thro' the Reservoirs; that such Waters as are not very good, become better;

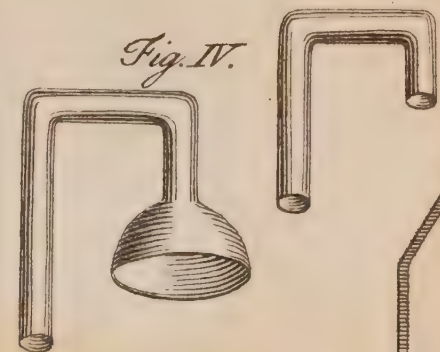


Fig. IV.

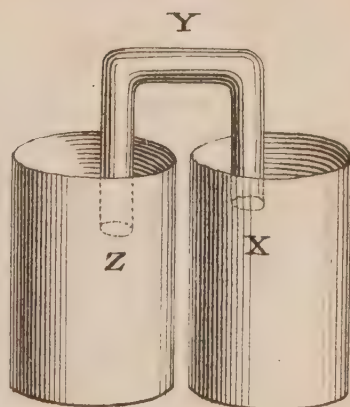


Fig. V.

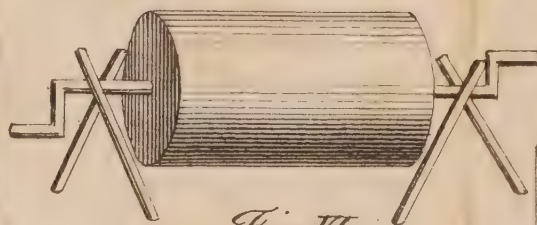
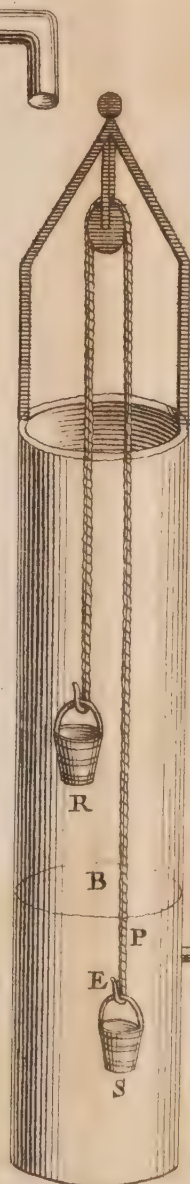


Fig. VI.

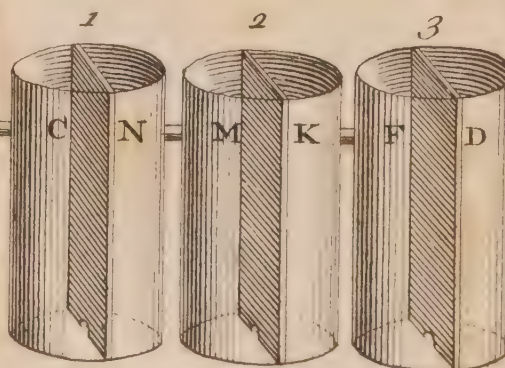
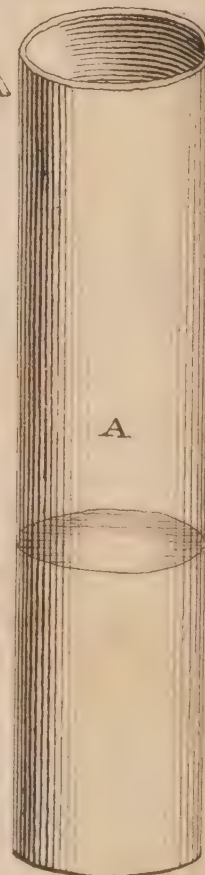


Fig. III.



better ; and that such as are bad, lose most of their prejudicial Qualities.

Let us suppose a Well A B, in which are two Buckets, C and D, fixed to a Rope employ'd by the Hand of the Soldier E, to draw Water.

Let there be a Vessel F G, divided into two Parts by the Partition H I L M, in such a manner however, that there may be towards the Bottom N G an Aperture, by which the two Parts of the Vessel may communicate with each other. We are to fill both these Cavities with Pebbles or Sand, and fix to the Top of one of them a Funnel O P W C, and are carefully to cover the Part H I I K with a Board, to hinder any Sordes from falling into it. If the Soldier pours the Water of the Buckets D and C into the Part N H I of the Vessel, it will arrive, by means of the Aperture at the Bottom, thro' the Pebbles and Sand, at the Funnels O P.

Now 'tis certain, that the Funnel O P will yield a Water more pure than that of the Well A B ; for it is impossible that the Water in descending to the Bottom of the Part N H I, should not be filtrated by passing thro' the Pebbles and Sand. It must also necessarily happen, that this Water by ascending into the Part G H I, in order to arrive at the Funnel O P, must leave its most gross Parts in the Sand and Pebbles thro' which

which it passes. The Water then in the Vessel P will be much more pure than that of the Well A B, which was proposed to be done.

If the Water of the Vessel P runs into a second Vessel entirely like the first, and full of Sand and Pebbles, and if this second is placed a little lower than the first, unless we are inclin'd to use a Syphon like that represented in Fig. 4. we shall obtain from the Pipe Q of the second Vessel, a Water much more pure than that of the first.

If we dispose several Vessels in the same manner, we shall have in the last Vessel R, in which there are to be neither Sand nor Pebbles, a Water still better than that of the former Vessels. This last Reservoir is of no other use than to preserve the Water which is purified by passing thro' the preceding Vessels, and requires no other Care or Precaution than that of being well covered.

By this very Method we may also purify the Waters of Rivers, Lakes, or Marshes, however foul or turbid they may be.

As it is not necessary to draw Water continually, the Motion of the Fluid ceasing in the Reservoirs, the Water will much better deposite the Impurities it contains.

Some

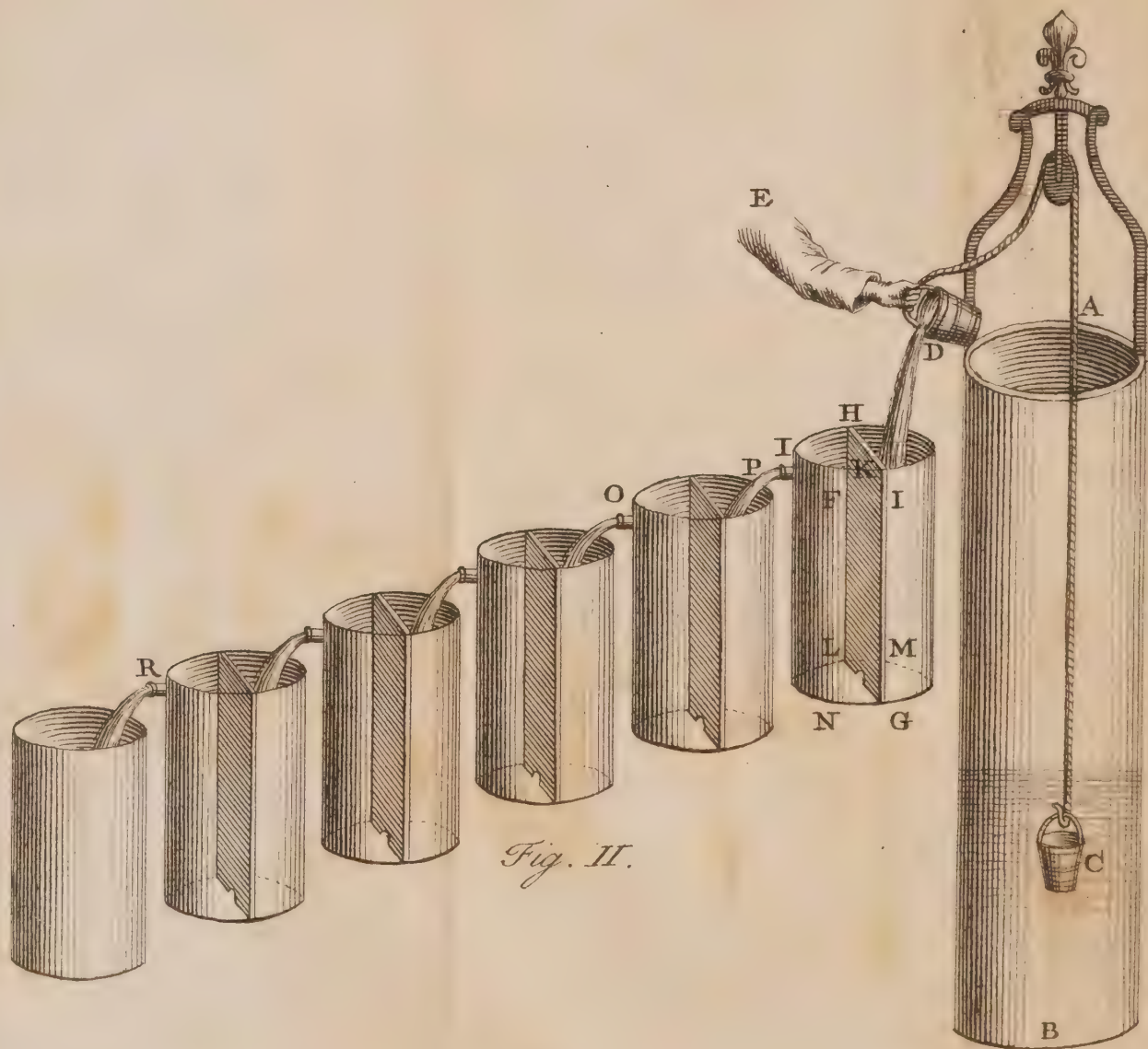


Fig. II.

Some Persons may object, That as the Methods I have indicated can only be put in Practice during the Summer, the Water of the last Reservoir will be much warmer than that of the Well, and that consequently the Soldier, who loves cold Water, will not be much inclined to use it: That it is not enough to say, that the Soldier may take the Water already purified, and, as is customary, put it into a Well in some Vessel in order to become cold, because that demands too much Trouble, and the Soldier when he is dry does not care to wait till his Water cools. Granting all this to be true, yet this Inconvenience may be redressed in the following Manner.

Let there be two Wells (A and B) near each other, as in the third Figure, and let them have a direct Communication (C D) with each other. Or let there be only one Well of an oblong or oval Shape, in order to place near it four or five Vessels. But I shall in the following Paragraphs consider the Wells A and B, which communicate with each other at a small Distance, and every one may put my Directions in Practice as he thinks proper, according to the Situation of the Soil, the Necessity he labours under, or the Circumstances in which he is placed.

We

We must place in the Communication C D several Vessels like those of the second Figure, that is, divided by a vertical Partition. The first of these must be so placed, that a Plate perforated with many small Holes (like that already describ'd) fix'd to it, be situated a little below the Surface of the Water. This Plate ought to be so situated, that the Water of the Well A cannot enter the Communication, but by the Apertures of the Plate, which ought to be very small, so that nothing but Water may enter them. The first Vessel ought to communicate with the second by means of the Pipe F K, and we ought to take care that no other Water enter the second Reservoir but that convey'd thro' F K. Or the first may communicate with the second Vessel, by means of a Syphon like that represented in the fourth, or, which is still better, that in the fifth Figure; so that by means of the Pipe X Y Z, the Water in the Reservoir X may pass into the Reservoir Z, till it acquires an equal Height in each. The second Vessel ought to communicate with the third in such a manner that no Water can enter the latter, except that convey'd by the Pipe M N, or X Y Z. The same Method is to be observed in all the others, till the Water arrives at the last Reservoir E.

All the Vessels are to be divided by a Partition, and fill'd with Sand and Pebbles, except the last E, from which the Water is to be drawn.

They

They are all to be cover'd with Boards, except the last E, over which is the Mouth of the Well B, with the Buckets S and R. These Vessels ought to be placed in such a manner, between the Waters contain'd in the two Wells, that no Water be on the Outside of them. This ought in a particular manner to be observed with respect to the Vessel E, that so the Waters about it may not enter it. It ought to be open at the Top for the sake of drawing the Water; as the others ought to be carefully shut up, that no Water may enter into the first except by the Perforations of the Plate, nor into the others except by the Pipes or Syphons which communicate between them. They may be entirely immersed in Water; 'tis better, however, that there should be no Water on the Outfides of them, since in this Case they may be the more easily mended when Occasion requires.

'Tis therefore evident, that the Water in the first Reservoir will be more pure than that of the Well A; that the Water of the second will be more pure than that of the first; that of the third more pure than that of the second, and so of the others; in Consequence of which the Water of the last Reservoir E will be more pure than that of the preceding Reservoirs, and equally cool with that in the Well A, which was proposed to be obtain'd.

In

In this Case the same Thing happens as in the Boat above describ'd ; for the Water will arrive at the same Heights in the Wells and Reservoirs, after which they will remain at Rest, and deposite their Impurities the better. But if we draw Water from the Well B, that is, from the last Reservoir E, the Water will be immediately put in Motion in all the Reservoirs, till the Quantity of Water taken from the last Reservoir is restored, and till the Water arises to the same Height in all the Reservoirs.

Lest the Pipes we have mentioned should to some seem incommodious or troublesome, tho' 'tis an easy matter so to adjust them that no Water can escape, I have shewn that the same Design may be executed with Syphons like that represented in Fig. IV. We may also substitute Syphons to the Pipes employ'd in the second Figure, which will prevent the Necessity of placing the Reservoirs lower than each other. But by the Disposition indicated by the second Figure, the last Reservoir may be almost entirely sunk into the Earth, which will contribute to render the Water cold.

In all the preceding Operations we have imitated the Means which Nature generally uses to purify Water, which by passing frequently thro' the Bowels of the Earth, there leaves its Impu-
rities,

rities, and at last produces Fountains whose Waters are good and salutary.

We have also made use of the same Means employ'd by those who built the Wells in the Palace of the Doge of *Venice*, and those in the Palace of Cardinal *Sacchetti* at *Rome*.

These are also the Means employ'd by the generality of Chymists, in order to purify most Liquors. But it is to be observed, that when the grossest Parts of the Liquor, by adhering to the Pores of the Filtre, have block'd up or less'n'd many of them, the Drops distill more slowly, but are much better purified. This Observation may be useful in many Cases.

C H A P. VII.

Containing the most easy Methods of preparing most aqueous Drinks or Liquors.

WATERS however good, generally prove prejudicial when drank in too large Quantities. The same holds true with respect to every thing else we use. Barley-water may also do a great deal of Harm; and *Galen* informs us, that he saw a Man die by drinking some of it unseasonably.

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Besides, the same Waters which in one Place are salutary, or produce no bad Effects, become prejudicial in another, though their Qualities remain the same; for it is to be observed, that they are often chang'd by being convey'd from one Place to another.

This happens because the Aliments we use are not every where the same; and as Waters do not mix with Bodies in one uniform Manner, their Effects must also be different. This *Plato* has demonstrated of all Causes in general, the Application of which is not always uniform, as we are certain from Experience.

When at *Rome*, I always talked of this Subject in the same Strain I do now, I have known Persons, who too much prepossessed of the Waters so much used by the *Neapolitans*, attributed to those of *Rome* the Disorders with which they were seiz'd. I maintained to them, that there were excellent Waters at *Rome*, but that if a Person should drink of them as frequently and copiously as the *Neapolitans* do, of the Spring by them called *Formale*, they would also produce Disorders: that if the Waters of *Rome* were transported to *Naples*, the *Neapolitans* might use them without sustaining any Injury; and that on the contrary, if the Waters of *Naples* were transported to *Rome*, and drank in too large Quantities, they would prove as prejudicial as
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those of *Rome*. The Air of *Naples* is highly pure, whereas that of *Rome* is thick, moist, and full of Vapours. This appears evidently at *Frascati*; for at what ever Time of the Year we direct our View thence to *Rome*, we observe it all cover'd with Fogs, unless the North Wind blows. The tops of the Houses there produce Herbs, especially the smaller House-leek; and the Brick Houses are in a short Time covered with Moss, which does not happen so frequently at *Naples*. The Casks also in the Cellars of *Rome* become mouldy, and the Straw of which the Coverings of the Bottles for the better Preservation of the Wine are made, rots in a short Time. I am therefore persuaded, that the Causes which produce these Phenomena at *Rome*, are also the Occasion why a large Quantity of Water drank there is more prejudicial than at *Naples*.

I could never approve of the Precaution of some People, who boil their Waters in order to prevent the Disorders they might produce, since by this Means they often render good Waters bad. If one asks them whether light or heavy Waters are best; they'll answer, that every thing else being supposed equal, the lightest are the best. Now it is certain that when we boil Water, the most heavy Parts remain in the Vessel, whilst the lightest are evaporated, as might be demonstrated by Distillation, if the Truth was not too evident to be denied. The great Specif-

fic Gravity of Waters also occasions, that if before boiling they have deposited some Impurities, they will deposite none after boiling, at least none till a long Time after; for after the boiling there is little or no difference between the specific Weight of the Parts which ought to be deposited, and those of the Water itself.

Many Persons extol the Virtues of some Decoctions as highly beneficial against most Disorders: But we do not here treat of Drinks consider'd as Medicines, for Mercury is serviceable to Patients when properly exhibited; nor do we consider these Potions, in which we ought rather to regard the Force of some Medicines put into them, than the Qualities of the Water; nor some Broths and other Liquors, which however have fermented sufficiently before they were used; for after by Fermentation these Waters have deposited some of their Parts, they become lighter and acquire spirituous Particles. I am persuaded there is no Spirit in new Wine, till it acquires it by Fermentation. These Liquors which I have mentioned, and which become salutary by Fermentation, are like Wine, Beer, or other Liquors, which are of no use before Fermentation. I here intend to speak of the Waters which may be prepar'd in a small Time, which have no need of Fermentation, and which may be of daily use both to the Rich and Poor. As boil'd Waters are almost always worse than such as are not
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boil'd, we must find out some Method by which the Soldier may easily prepare for himself a wholesome and salutary Liquor, when the ordinary Water, tho' good, does him harm. But I would have it observ'd, that tho' boil'd Waters are worse than such as are not boil'd, yet Water drank warm is more beneficial and salutary than that which is cold, as I have shewn when treating of the Virtues of warm Water. It is also to be observ'd, that this Water proves more or less beneficial, according to the Degrees of its Warmth.

From what has been said it is obvious, that the Water to be used by a Soldier ought to be of the natural Kind, and stands in need of no artificial Preparations, provided it is pure, of a good Quality, and suited to the Climate.

If the Climate and Temperature of the Air do not render the drinking large Quantities of Water proper, yet the moderate Use of it will in my Opinion do no harm. I am persuaded that tho' the Waters are good, People ought to drink but little of them in Countries where the Air contains a great deal of aqueous Particles, which give the Body its necessary Moisture, or in Places where little of the natural Moisture is dissipated; so that in such Places the drinking little Water contributes to the Preservation of Health. What I have said is confirm'd by Experience, since Peo-

ple are less affected with Thirst when moist Winds blow, whereas they are more subject to Thirst during dry Winds, such as those blowing from the North ; either because these make a larger Quantity of the Moisture of the Body exhale, or furnish too little of it, or perhaps because both these Causes concur. But a Soldier cannot always know the Temperature of the Air, nor discover when it is more or less moist, as he is accustomed to drink, he thinks it a Circumstance of no Importance in what Air it is ; and many Persons drink, not because they are dry, but because they are accustomed to it.

Though I am an Enemy to all kinds of Excess, yet in such Cases, I think it better to drink Liquors which contain a considerable Quantity of spirituous Parts, such as Wine, Beer, and Mead, which may be substituted in the room of Wine when it is good. These Liquors are certainly proper for a Soldier ; but as he cannot prepare these Liquors himself, I shall point out to him the Method of preparing easily such Liquors as are salutary, wholesome, and beneficial.

But this Method is not every where the same, because all Countries do not produce the same Things ; and because in some Places certain Commodities are very cheap, whereas in others they are so dear, that every body cannot purchase them. For Example, at *Venice* in 1683,
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the Pound of dry Currants was sold for a Penny ; and with five Pounds of these Currants we may prepare thirty Quarts of a Liquor, which nourishes, strengthens, allays Thirst, is good for the Breast, and procures numberless other Advantages. This Liquor is prepared in the following Manner.

After having thoroughly bruised the Currants, put a Pound of them in six Quarts of boiling Water, and stir the whole carefully ; then permit the greatest Parts of the Currants to subside to the bottom. We may also make this Liquor with other kinds of Grapes, of which the Stones are beneficial in Dysenteries, so that we may obtain several Remedies from one and the same Substance. At this Time the *Venetians* were at War, and found great Benefit from this Liquor.

We may also prepare Drinks of Jujubes, Figs, Prunes, and almost all other Fruits, in the choice of which we may be determined by the Quantity of these Fruits produced in the Country where we happen to be.

There are also various Species of Apples, which being bruised, and put into boiling Water two or three Days, yield a Liquor which is not only agreeable to the Taste, but also beneficial in a great many Diseases.

Though in *Hungary* none of these Things are to be found, yet there is plenty of Bread prepared of Barley, Oats, and Corn. Now in a Country where the Qualities of the Air do not permit the use of Water alone, we may with Bread prepare a Liquor which is far from being prejudicial. Thus by toasting Bread and throwing it into Water, the latter is impregnated with a large Quantity of the Particles of the former, as is obvious from the change of Colour and Taste, and by the Strength the Water acquires. These Waters in Virtues resemble the Decoctions of Barley, which Physicians order for most Patients, or rather they resemble a light Beer, or small Wine. The salutary Nature of this Liquor is sufficiently shewn by *Schroder*; and the *Italians* and *Germans* in all Diseases prefer it to the best and purest simple Water.

An Ounce of Bread cut thin, and well toasted, is sufficient for a Quart of Water.

What I have said is sufficient to indicate the Method of preparing a great Variety of salutary Liquors. It is however to be observed in general, that in preparing these Waters we are not to use such Things as stand in need either of Boiling or Fermentation, as Barley, Wheat, and several other Grains; for if we prepare Waters with Barley or Wheat, by simple Infusion, they will be very unwholesome; we must therefore choose
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such Substances, as in order to become good, require neither Boiling nor Fermentation, of which Kind are the dry Leaves of several Herbs, the Dill, Fennel, and Coriander, Citron and Orange Peels, together with many other Substances. The Soldier, however, ought not to use these Substances indifferently, but to accommodate them to his Constitution ; or if he is ignorant of that, to follow the Advice of his Physicians. The Soldier whose Stomach is weak, and performs its Functions slowly, ought to drink dry Coriander Seeds infus'd in Water, which is to be frequently stirr'd. An Ounce of these Seeds is sufficient for three or four Pounds of Water.

The Soldier who is afflicted with a Cough, a Difficulty of Respiration on account of a Redundance of Phlegm, or an Acrimony of Urine, ought to drink a well-saturated Infusion of Liquorice Root, which is to be bruis'd with a Hammer, that the Water may be the sooner impregnated with its Parts.

The Soldier whose Stomach is weak, or afflicted with Nauseas, who is subject to Flatulencies or the Colic, or who dreads the Approach of a Diarrhæa or Dysentery, ought to infuse half an Ounce of the Leaves of curled Balm in three Pints of Water, which makes an excellent Remedy for these Disorders.

The same may be said of the Infusions of Baum, Burnet, Hyssop, and many other similar Plants, from which the Soldier may obtain Relief in all his Diseases, without being at great Expences. The same may be said of the Infusions of the Saw-dust of the Mastich and Ash-Trees, of Oak-Bark, and the Roots of Elicampane, reduc'd to small Morfels, and the Roots of Angelica or Vipers Grass. A simp'le Infusion of these Plants affords Waters highly beneficial both for the Prevention and Cure of Diseases.

I should swell my Work to too large a Size, if I treated of every particular Substance proper for this Purpose. It is sufficient to have laid down a general Method of preparing Waters by simple Infusion, and to have given several Examples of such as are good and salutary ; for any one, from what I have said, may know how to prepare a great many others: It is however proper that I should speak of Forge-water, that of Rust, and that of the Pine-tree ; but I shall previously make some Remarks, which will not only facilitate their Preparation, but also render them more efficacious.

If the Herbs of which we intend to compose our Waters, such as the Roots of Dogs-grass, or any other Herbs, are put into warm Water, and after being frequently stirr'd, left in a warm Place, we in a short Time obtain salutary Waters.

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The Plants used for Infusions should be dried in the Shade, and at the same Time not old, since by this Means they acquire a certain Maturity, and convey more Virtue and Efficacy to the Water, as is sufficiently obvious from Experience. Olives, for instance, yield less Oil when they are subjected to the Press immediately after they are gathered, than when they have been exposed to the Air for some Time. In like manner hardly a Drop of Oil can be obtained from new Almonds, Pompion-seeds, Pine-nuts, and some other recent Fruits. The most skilful Apothecaries know, that they obtain less Juice from the Leaves of Rosemary, Mint, Penny-royal, and Wormwood when they are green, than after they are dried, and kept for some Time.

As all Substances to be infused ought previously to be cut or bruised, they ought only to be so immediately before their Infusion, otherwise their Virtues will be lost, and only the most worthless Parts remain. Those who have remarked the difference between Cinnamon bruised recently, and that reduced small a long Time before, will easily be convinced of the Truth of what I say. Certain Fruits, as sweet and even tartish Apples, when ripe, yield good Waters, and may even be made into Wines.

We may also compose a salutary Water by infusing the Filings or Rust of Iron. This Prepa-

ration is of a more tedious Kind than the former, but it is shortened by making warm, keeping it in a warm Place, and stirring it frequently.

The Rust and the Filings contribute to correct many bad Qualities of the Water. Thus for Instance, if it contains any acrid or acid Particles, these will be corrected by the Filings of Iron, or the Rust of old Nails, and the Water will be a medicated Water.

I have nothing to do with those who assert, that Waters before acid, when impregnated with too great a Quantity of Iron, become very prejudicial, since I do not treat of Waters which contain an Extraction of Iron, but of such as by an Infusion of its Filings become Medicinal.

In the Armies of the Emperor, many Soldiers have been seiz'd with Disorders, in which the last mentioned Water would be of singular Service ; such as Diarrhæas, Dysenteries, Weakness of the Stomach, Indigestion, and a bad Distribution of the Aliments, which may lay a Foundation for numberless Disorders.

File-Dust may be had, if not for nothing, yet at a very small Price from Blacksmiths ; and in Arsenals, Soldiers may find abundance of the Rust of Iron for Infusions.

It is no difficult matter to prepare a large Quantity of this Water. For this Purpose we must have a Vessel which, like that represented by Fig. VI. moves upon an Axis, in which we put the Water, Rust, and Filings. By turning and agitating the Whole in this Vessel, we shall soon have a large Quantity of Water, which is to be distributed to the Men who have occasion for it. But if it should not be prepared in this Manner, every Soldier may with four or five Ounces of the Filings of Iron prepare some for his own use, either in a Vessel of Glass, or a varnished earthen one.

We may also by simple Infusion obtain a Pine-Water, by putting into Water Pine-Kernels dried and bruised. Such Kernels must be chosen as are most fat and full of Rosin; for as all Pine-Trees do not contain equal Quantities of Rosin, so neither do their Kernels. Often in the same Tree some Parts of the Wood and Bark are covered with Rosin, whilst the rest are entirely without any. When at *Vienna*, I have often prepared this Water for my own Use, by infusing some resinous Slices of Pine-Tree in Water. This Liquor excites a Discharge of the Urine and Saliva, and renders the Lymph more liquid. Now in all the Diseases which reign in *Hungary*, the Saliva is thick, and the Lymph inspissated, as is obvious from the Colour and Roughness of the Ground, and the insatiable Thirst
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of the Patient. Besides, Pine-water facilitates Transpiration, which is the most easy Method Nature takes to prevent Diseases.

Pine-Water brings to my Remembrance those of *Pisa*, so celebrated through all *Tuscany*, where they are accounted highly salutary. The learned *Borelli* is of opinion, that these Waters derive their Virtues from the Root of the Pine-Trees through which they pass, and from which they abrade some Particles. According to the Description that Philosopher gave me of them, their Taste Colour, and Smell, were the same with those of an Infusion of the Pine-Tree. Be this as it will, it is certain that this Water is excellent for preventing many Diseases. The same may be said of the Waters prepared of the Larch-Tree, and several other Trees.

As Soldiers are sometimes not easily pleas'd, some of them may possibly complain that I have prescribed no Medicines of great Value, such as an Infusion of Aloes-wood, or the Water prepared with the Powder of Pearls, or other precious Stones, which are Liquors accounted highly efficacious against malignant Disorders. But I can tell such Soldiers, that Water prepared with Iron, that of Mint, or that of Baum, are of more Efficacy than that prepared with Aloes-wood. If we consult the Works of practical Physicians, we shall find more Patients cur'd
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by Iron alone, than by Aloes and Water prepared with Pearls, which are no better than those prepared with calcin'd Harts-horn, or Powder of Crabs Shells or Eyes, abundance of which the Soldier may get by searching for them.

I don't however assert, that we ought absolutely to despise foreign and dear Medicines ; I would only have the Soldier content with the common Remedies, which are not only cheap, but also highly efficacious, if properly exhibited. There are also foreign Remedies which are not dear, provided the Soldier has Occasion for them. He may, for Instance, procure at an easy Rate, an Infusion of red and yellow Sanders ; for the smallest Quantity of Sanders is sufficient to communicate its Virtues to three or four Quarts of Water, so that this Water costs less than distill'd Succory-Water, which is of no Worth in Comparison of that of Sanders, which cures the Fevers incident to Men in Camps. A small Quantity of Sassafras-Wood, which is cheap, is sufficient to communicate its Virtues to a large Quantity of Water ; which may be also said of several other Medicines.

Before I come to treat of the Air, I must apprise the Soldier, that in most Circumstances wherein Water, tho' good, is improper ; when, for Instance, he is overheated, or has his Humours put into a violent Commotion by March-
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ing or Fatigue, it is expedient to put into it some Drops of *Aqua-vitæ*, Wine, or Beer. In like manner it is proper to put some Drops of *Aqua-vitæ* into it when the Saliva becomes so thick that he is forced to drink, or when he perceives any Marks of Obstructions of the Viscera, Crudities, or a Dropsy.

I heartily wish, that all who read this Work would pay a due Regard to what I have advanced in this Chapter, on account of the many considerable Advantages to be reap'd from it.





P A R T III.

Indicating the Means of preserving Soldiers from the Diseases produced by the Air.

TIS almost generally believed, that the Disorders of Camps are more dangerous in *Hungary* than in any other Part of *Europe*, on account of the unwholsome Qualities of the Air and Water. Though I am persuaded, that the Water contributes considerably to this Effect, yet I'm of Opinion, that the Air is of far greater Influence; for 'tis certain from Experience, that the Waters of *Hungary*, when salutary, if drank in large Quantities, are prejudicial to the Soldier, on account of the Disposition of the Air, which does not permit the drinking of cold Water, unless it is impregnated with the Virtues of some Medicine. Let us, to this Disposition of the Air, add the Change in the Soldier's manner of living, which renders the Waters not only bad, but also highly prejudicial. As 'tis necessary to give an Account of the principal Causes of the Soldier's Diseases; we have in the preceding Part consider'd Waters, and shall in this treat of the Air.

Air. I wish that my Labour, and the Means I indicate for the Preservation of the Soldier's Health, may meet with Success. And tho' they do not, yet I shall be glad if I but excite some others to compose a Work more beneficial than my own. I shall not weary the Soldier's Patience by Trifles, but pass over in Silence many impertinent Questions which render the Subject more obscure and intricate. I shall however lay down some Principles concerning the Nature of the Air, for the Sake of those Soldiers who have Genius and Leisure, that thus they may discover the Reasons of what I advance concerning the good or bad Qualities of the Air. I shall divide this Part into several Chapters, in the first of which I shall consider the State of the Air in a Summer's Day, that is, when it is heated by the direct and reflected Rays of the Sun. In this Chapter I shall also say something of the Disposition of the Air during the Night. Then I shall examine the Changes which happen in it during both Night and Day. I shall also treat of Fogs and Dews, and of the Air in Mines and Places where the Earth has been lately digged up. I shall also consider the State of the Air near Marshes, Meadows, and Fens. And as bad Air is more prejudicial to the Soldier who sleeps, than to him who wakes, I shall in a particular Chapter shew what is beneficial to the Soldier who sleeps, and what he ought to do when he wakes. And lastly, I shall ascribe to the Air the Injuries done by Carcasses,

castles, which corrupt it by their Exhalations, and become prejudicial by their Stench and the vast Number of Insects they engender.

C H A P. I.

Principles concerning the Nature of the Air.

WHEN I said I intended to lay down some Principles with respect to the Nature of the Air, I did not mean to advance uncertain Propositions, but such as are sufficiently true in themselves, tho' I have not attempted a Proof of them.

The Air, then, is a liquid Substance, and has Parts to which the Properties of Bodies agree, or Parts consisting of three Dimensions, which are capable of Augmentation, Diminution, Motion, and of receiving different Figures ; and if Bodies have any other Properties, these also belong to the Parts of the Air.

There are different Sorts of Air as well as of Water, and we often find the Difference as great as that between Water and Oil, or Water and Wine, Vinegar, or any other Liquor

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This Difference proceeds from the Situations of Countries, from the Mountains, Vallies, Rivers, and the Varieties of Parts emitted from the Bodies shut up in the Bowels of the Earth. It may also proceed from the different Position and different Aspects of the Sun, which occasions different Motions in all the Bodies which compose the terrestrial Globe.

There are in the Air some Particles which can penetrate into all the Bodies which we know in Nature, whilst it contains other Particles which cannot do so.

Among the Parts of the Air, some pass more easily thro' Glass than thro' Paper, and others more easily thro' Paper than Glass. Hence we may conclude, that the Air is composed of Parts which act more easily on one Body than another; that they separate some Parts from the one, whilst they produce no Effects on the other; and consequently, that there are some Bodies which receive no Alteration from the Air; in like manner as Gold undergoes no Change by Vinegar.

The Air, as well as all Bodies which are not entirely similar and homogeneous, may be of different Uses.

Man lives by Air, which also contributes to his Nourishment. In a Word, we continually
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reap Advantages which are absolutely necessary to Life from the Air, but the most considerable of these is Respiration.

The Air, as well as other Bodies, may by single Contact alter the Bodies of Animals, whether its Application is made externally or internally.

If the Air acts upon any Part of the Body, and even penetrates into the most latent Parts of the Nostrils, Throat, *Arteria Trachæa* and Lungs, it may there produce, and even sometimes cure Obstructions.

The Air frequently renders the Appetite keen, and gives Strength to the Liquors with which the Aliments are prepar'd, tho' it sometimes produces contrary Effects; so that the Changes of the Air produce such an Alteration on the Aliments in the Stomach and Intestines, as is more or less capable of preserving or destroying the good State and Disposition of the Body.

These are the Principles we thought fit to establish concerning the Nature of the Air. They are sufficiently evident, and easily deduced from Experience. Besides, if the Reader is at sufficient Pains to comprehend them, he will readily perceive the Reasons of the Application we make of them,

C H A P.

C H A P. II.

Of the Diseases produced by the Sun.

Soldiers not accustom'd to be long expos'd to the Sun, may, by being so, be expos'd to various dangerous Disorders; and these Disorders are more frequent and dangerous in some Countries than in others, and more or less violent according to the Constitutions of the Patients. There are some Persons indeed to whom the Sun does no Harm, and who have never experienced the Truth of what I say, either in themselves or others.

But there are others who by sleeping an Hour or two, especially in Summer, expos'd to the Rays of the Sun, with their Heads uncovered, wake with an Head-ach and Fever. Persons expos'd to the Sun without sleeping, are less injur'd by it; and those are still less prejudiced, who without sleeping, employ themselves in some Piece of Exercise during the Time they are expos'd to it.

It is easy for a Soldier in good Health to guard against sleeping in the Sun, and to employ himself

self in some manner or other. This ought to be his constant Care; otherwise the Humours are rarified, and Respiration often obstructed. Now it is advantageous in making any great Efforts to retain the Breath, to which even Nature is disposed on such Occasions. There is also a great Tension of the Muscles, and the Motions of the Tendons and Articulations are augmented, which produces a Relaxation of the Fibres, a Dilatation of the Orifices of many Vessels, and a considerable Discharge of Sweat. But this State does not continue long; for besides an Infinity of Alterations which may happen in animal Bodies, the Air changing considerably after the Setting of the Sun, at which Time the Soldier generally quits his Fatigue, easily produces Obstructions of the Pores of the Skin, upon which it becomes dry, and has its Fibres constricted, by which means Transpiration is stop'd: And if this Accident, which of itself is sufficient to produce a Fever, concurs with some others, the Patient is seized with a Diarrhæa or Dysentery, and even frequently with an Hæmorrhage from the Mouth and Nose.

Now in *Hungary*, much more than in any other Country, the Air of the Day is entirely different from that of the Night; for whilst the Sun is above the Horizon, the Heats are very troublesome to the Soldier; and when it is set, the Cold becomes no less insupportable to him. I have

have formerly observed the like near the Mouth of the *Tyber*. When in Winter that River overflows its Banks, the Water finding no Vent, renders all the Fields Marshes; and in Summer, when the River subsides, those Marshes become dry, the Ground appears, and then the Air is highly prejudicial.

If a Soldier seized with a *Diarrhæa*, *Dysentery*, Fever, or any other Disorder, exposes himself to the Sun, either thro' Necessity or with a View to find Relief from it, especially if he sleeps in the Sun, he will be so far from reaping Advantage, that these Disorders will be longer protracted. They may also continue for a long Time, if he sleeps in too cold a Place, where the Air is generally of such a Nature as to produce an Obstruction of the Pores, or augment that which already exists.

This proves what I have elsewhere advanced, namely, that Heat and Cold may produce Effects exactly similar; and all Physicians agree, that both of them may produce an Obstruction of the cutaneous Pores. It frequently happens however, that some of them forget their own Sentiments, or at least know not how to make use of them, when there is a Necessity for investigating the Effects of Nature.

For my own Part, I am firmly persuaded that Transpiration is of great Importance to preserve the

the Health and Strength of a Soldier. As in *Hungary* the Days are very warm, and the Nights very cold, so the Body transpires less freely, and Obstructions of the Pores are very frequent. It is certain from experience, that Persons who transpire best, are least subject to Diseases, and soonest cured when afflicted with them. For this Reason a Discharge of Sweat is generally, if not always the principal Remedy for the Diseases which rage in Camps; and such Things as facilitate Transpiration are justly accounted most efficacious for their Cure.

The Soldier then who is desirous of good Health ought not to Sleep in the Sun; and if he is obliged to remain exposed to its Heat for some Time, he ought not to be unactive, but employ himself about something; and if he is forced to work in the Sun, he ought not suddenly to go from Labour to Rest, nor from a warm to a cold Air, or even an Air much less warm than that which is heated by the Sun; he is to wipe off his Sweat, and to take particular Care of his Head, observing not to pass suddenly from one Extreme to another.

He is slightly, and at proper Intervals, to rub all the Parts of his Body; for this piece of Practice is of great Service, and was greatly used by *Hippocrates* and *Celsus*.

He ought to perform the same Motions with Wrestlers, or move sometimes one and sometimes another Part of his Body. Those who have the Charge of Horses, and Dogs, take these Measures with them when they are over-heated, and have their Humours thrown into violent Commotion by the Chase, or any other Fatigue. By these Motions and Frictions we hinder the Humours from stagnating in particular Parts, and producing Obstructions, which lay a Foundation for Tumors and Inflammations, whence many dangerous Disorders may arise.

The Soldier whose Skin is become too dry may anoint the whole of his Body with Oyl, Butter, Hogs-Lard, or any other similar Substance.

It is beneficial to smell to strong Vinegar, to swallow some Drops of it, and even to eat a Slice of Bread soak'd in it.

The Smell of Camphire is also very salutary, and the Soldier may chew a Grain or two of it in his Mouth, swallow his Saliva, and repeat this several Times.

After the Soldier, when over-heated by Labour, has permitted his Blood and Humours to calm for a due Time, he may, if he inclines, drink Wine mix'd with Water, Beer, Water with some Drops of Aqua-Vitæ in it, Baum-water, Mint-

Mint-water, Sassafras-water, that impregnated with Bread, or common Water in a small Quantity with some Drops of Vinegar ; for I am always afraid of the bad Effects of too large a Quantity of common Water.

Bilious Persons, and those subject to a bitter Taste in the Mouth, ought to put Lemon Juice or some Drops of Verjuice in the Water they drink. An excellent Drink for the Stomach may be prepar'd of Water, Lemon Juice, and Aqua-vitæ, or some Drops of Verjuice may be substituted in the room of the Lemon Juice. We ought to take particular Care of the Stomach after having been exposed to the Sun ; for the Defect of Transpiration, and the Head-Ach, easily disorder the Digestion, and the natural Functions depending on it.

We ought to mix some Drops of Aqua-Vitæ with the Acids we drink ; for I have known some Persons, who by the immoderate use of Lemon Juice have been seiz'd with Dysenteries, Pains of the Joints, and obstinate tertian and quartan Fevers.

Acid Liquors are improper in Camps, especially when drank in too large Quantities. The Chymists, by adding some highly acid Liquors to Spirit of Wine, by that means prepare many excellent Remedies : In imitation of them I have

often mix'd Aqua-Vitæ with Lemon Juice, or Verjuice, which produces a Liquor very proper for allaying Thirst, and moderating the preternatural Heat of the Stomach.

Some Persons imagine, that on such Occasions it is expedient to use such Aliments as have no Strength, and are destitute of spirituous Parts, as Pumpions, Melons, Endive, Lettice, and others of a like Nature, because these Aliments cool the Blood : if however, something is not added to these, in order to correct and invigorate them, they will very readily produce Diseases in Camps. Garlick, Cresses, Thyme, Wild Thyme, Origanum, Cumin, Dill, Pepper, Ginger, Cloves, Cardamoms, and Dittany, are very proper for this Purpose.

We ought also to excite a Discharge of Urine by purified Nitre, Parsley, Smallage and others of a similar Nature. The same Effect is also produced by some of the Medicines we have before mentioned, such as Pine-Water, and that in which some Drops of Aqua-Vitæ are put ; for by Urine and Perspiration we evacuate many bad Humours of the same Kind, the Retention of which would infallibly produce Diseases. If therefore we cannot discharge the whole by one way, we must attempt it by another.

If the Soldier by being exposed to the Sun, or by passing too suddenly from one Air into another

ther of a different Quality is seized with a Fever, a Diarrhæa, a Dysentery, an Hæmorrhage, or any other Disorder, they are to be removed by the Remedies peculiarly adapted to each.

C H A P. III.

Of the Air in Mines and Places where the Earth has been lately digg'd up; as also of Fogs, Dews, and serene Weather.

IT sometimes happens, that in Armies the Soldiers are obliged to dig Mines, and tho' on some Occasions the Air of these is good, yet it more frequently happens that it produces not only Diseases, but also Death, as is frequently observed in Metal and Coal-Mines.

In Mines, Persons breathe two different Kinds of Air, one of which is the external Air, which succeeds in the Place of the Earth taken out, and the other is composed of the Substances which proceed from the same Place. Perhaps before nothing was emitted from that Soil, and the Matter which constitutes the Sides of the Mine; but after the Earth is opened, and access given to the external Air, there arise Smoaks, Vapours, and Exhalations, which vary according to the different Qualities of Soils. All these Substances when

F 3 mix'd,

mix'd, compose a third Species of Air, which for the generality is not salutary, and produces Diseases, and which even sometimes proves mortal. It has often been observed, that in such Mines Fire will not burn, but is extinguished in a Moment. In a Word, Soils are different from each other, so that the same Effects are not observed in all subterraneous Places; and accordingly as we dig the Earth of one or another Part, different Exhalations arise from it, which render such Places very unwholsome, and unfit for preserving the Fire brought into them.

The like happens in all Places where the Earth has been lately digged up, unless they are uncovered, and the Winds blow upon them, and unless the Exhalations emitted from them find a sufficient Space to diffuse themselves in; for in this Case such of them as are most hurtful being more rarified, can produce less fatal Effects.

Hence it follows that this Air, when not pent up, will become less prejudicial according to its Quality, than if it was confined: it is however sometimes very unwholsome, and if it does not prove mortal, yet it produces a great many Disorders.

Though by these and many other Observations it appears, that the Air in which Water is corrupted, and Fire extinguished, must be pernicious to
Men

Men and all other Animals, yet it does not follow that the Air in which these two Elements are not affected, is proper for the Preservation of Health. The Air (for instance) round a Person labouring under the Small Pox, Purples or Plague, produces no Change in a Fire or Candle, though it is very unwholsome, and proves mortal to many.

All the Parts of the same Ditch are not equally wholsome, because they are not all equally illuminated with the Sun, nor equally exposed to the Winds, because they do not lie the same Way, and because the Soil is different.

An Air, though unwholsome, is not equally prejudicial to every Body, since some Persons sustain no Loss by it, as is observable in the Plague; since I have known Persons who lived along with Patients labouring under this Disorder, without being infected, or having the least Change induced on their Healths.

Be this as it will, 'tis certain from experience, that the Air of Mines, Ditches, and Places where the Earth has lately been digged up, has often produced Diseases among the *Germans*, notwithstanding the Vigour of their Constitutions, and that many of them have died even suddenly by this very Means.

Though a foggy Air often contains nothing but aqueous Particles, yet it is much more unwholesome than a serene Air, and sometimes proves highly prejudicial to Armies on account of the Qualities of the Particles of which it is composed; it contains very often, a Substance of such a Nature as to render People drowsy, produce a Numbness of all the Senses, and as it were a Stupidity of all the Faculties of the human Soul.

I do not here speak of the bad Smells produced by Fogs, since these do not render them greatly prejudicial; but Fogs are principally injurious, because they block up some of the Pores, inspissate the Humours, and want Force enough to dissolve them sufficiently. Fogs also are causes why the Body transpires with more Difficulty, and why the Juices subservient to the Preparation of the Aliments in the Stomach and Intestines acquire a bad Quality. now these and other similar Causes may produce various Disorders. Besides, unless the Organs subservient to Smelling are not in their natural State, as it sometimes happens that the Eye sees Objects double, the bad Smell of the Air is always a Sign of its bad Qualities.

Fogs are more frequent in some Places than in others, and the Substances of which they are composed are not always the same: they are not equally hurtful in every Year, and in every Month,

Month, since as great a Variety is observable in them as in all other Things. They generally happen about the Equinoxes.

I have observed at *Vienna*, about and after the autumnal Equinox, great Fogs, which tho' they had no bad Smell, yet produced a considerable Difficulty of Respiration, as *Van Helmont* often experienced in himself. In the lower *Germany*, Fogs are more or less thick according to the Matter which composes them; so that sometimes a Person can see pretty far, and at other times only to a small Distance in them.

'Tis by no means a Circumstance of an indifferent Nature, whether, during a Course of foggy Weather, Soldiers are in a City or in Camps long and constantly exposed to it.

In *Utrecht* and *Hungary*, as well as in most other Countries, there are in the Months of *June*, *July* and *August*, a great deal of Damps or Dews during the Night. Now the Quality of Dew is not every where the same, since it is often different in the same Place *. Sometimes it is no more than a clear and pure Water, whilst at other times it has the Appearance of

F 5 such

* What is said concerning Dew, must be applied to Damps.

such Water, but is in Reality quite a different Substance. It often renders the Body highly soluble, and, as Chymists have observed, frequently contains corrosive Particles. For this Reason I'm convinced, that an Air impregnated with Dew, may produce a great many Alterations in the Bodies of Animals. Nor is it surprizing, that when it is attracted in Respiration, it should, according to its Quality and the Constitution of Patients, produce, among other Disorders, sometimes a Diarrhæa, sometimes a Dysentery, and sometimes both together.

Aliments render'd moist or wet with Dew, may also produce Diarrhæas, Dysenteries, and most other Disorders. The Milk also, and Fleshes of Animals fed on dewy Herbs, may produce the same Disorders; for as the Milk and Flesh of Goats which have eaten Hellebore are purgative, tho' the Hellebore produces no Effect on these Animals, so the Substances carried along with the Air may produce similar Effects; and tho' many Persons ascribe the Disorders, of whose Causes they are ignorant, to the Influences of the Stars, yet it is far more consistent with Reason and Sense to attribute them to the Air, whose Nature and Qualities are not always the same.

This might be proved by various Arguments; but 'tis sufficiently obvious, that the Dew is sometimes

times the Cause of a Diarrhæa and Dysentery, since these Disorders generally happen at the Time when the Air is most copiously impregnated with Dew. In 1684, in the Months of *July* and *August*, Diarrhæas and Dysenteries were very frequent at *Lintz* and among the Imperial Army. These Disorders were also very frequent at *Vienna* before the *Turks* laid Siege to it, during which they were also seized with them. There is one Thing remarkable, which is, that both about and after the Equinox, there were few Diarrhæas and Dysenteries in the Army, whilst at *Lintz* these Disorders did not rage at all, or at least very rarely. Few Persons, comparatively speaking, were cured of the Diarrhæas which appear'd in the Months of *July*, *August*, and beginning of *September*. In *September* and *October* these Diseases were succeeded by tertian and quartan Fevers. Diarrhæas and Dysenteries also reign in *Italy* during the Summer.

By what I have said, I would not be thought to deny that Diarrhæas and Dysenteries may be produced by other Causes than these I have specified; but I am glad of an Opportunity of informing the Soldier, that the Diseases with which he is seized, are often to be ascrib'd to no other Cause than the Air.

In order to support what I have said, I could advance a great many Observations concerning

Manna, which is not every Year found in equal Quantities in the Places where Ash-Trees grow. I have in Summer seen an Oak-Tree whose Branches bended under the Weight of Honey deposited on them, and this was in a Place where the like was never seen to have happen'd before. When at *Naples*, I have seen a Substance of a red and various other Colours, fall upon Linen Cloths. These and other Phænomena sufficiently evince, that some Substances fall from the Air, which not only adhere to Bodies on the Earth, but also produce various Changes in them.

Tho' 'tis difficult to prevent all these Misfortunes, and entirely guard against the Injuries of the Air, yet we may by means of certain Precautions render them of less Force, and less frequently prejudicial. Those who know that the Air is often injurious to the Body, tho' they are ignorant of the Manner in which it produces these Injuries, may avoid the greatest Part of them, by proper Care and Management.

'Tis not to be doubted but a Man is capable of supporting the Vicissitudes of Good and Evil, without suffering much by the latter, provided it is not of long Duration ; and tho' this seems to be a very surprising Assertion, yet I shall make another which appears to be of a still more extraordinary Nature, which is, that a Person may breathe a salutary, amidst a pestilential Air,
and

and order Matters so, that no Part of an infected Air, or at least not so much as to prove prejudicial, can mix with that which is salutary, as is sufficiently confirm'd by repeated Observations made in different Plagues. If I do not indicate all the Means necessary for succeeding in this Attempt, every Person may, according to the Difference of Places and Occasions, and the different Experiments he has made, add to what I intend to say, whatever he thinks most beneficial either for the Preservation of his own Health, or that of others. I shall follow the Order I propos'd, and first speak of the Air in Mines.

The Air then in Mines will become less prejudicial and injurious to Health, by making Apertures and Perforations at proper Distances, in order to permit the Ingress of the external Air, and the Egress of that before contain'd in the Mine.

It is also expedient to place at the Mouth or Entry of the Mine, something capable of attracting the external Air. This Substance ought to be of such a Nature as not to prove prejudicial to the Body, especially the Lungs, and to produce a considerable Effect when used in a small Quantity. Nothing is better for this Purpose than to kindle a small Fire of Brimstone, at the Mouth of the Mine. Tho' the Smoak of this Substance is disagreeable, stimulates the Nostrils, and ap-
 appears

appears unfriendly to the Lungs, yet it will do them no Harm. Tho' a Fire of Sulphur is of no greater Efficacy to attract the external Air than other Fires, yet it procures numberless other Advantages, as I experienced in the violent Plague of *Naples*, and frequently since that Time.

'Tis also expedient that the Soldier should not go fasting into Mines, but should previously use something to promote a Fermentation and Rarefaction of the Humours, to facilitate Respiration, and produce in the Body various other Effects, capable of preventing the Disorders generally occasion'd by the Air. For this Purpose the Soldier ought, before he goes into a Mine, to swallow some raw Garlick cut small, or a Scruple of Myrrh, after which he is to drink a Glass of Wine; or he may drink a proper Quantity of Wine in which Myrrh has been infused. I own Myrrh has a disagreeable Taste, but what ought we not to do for the Preservation of Health? The following is an excellent Remedy against the Malignity of the Air in Mines, is to be had at an easy Rate, and may be advantageously used by the Soldier who can take an ill-tasted Medicine.

Take one Ounce of the best Myrrh, half an Ounce of the Hepatic Aloes, and of Saffron one Scruple. Mix all together in
three

three Ounces of Spirit of Wine for a Tincture to be preserved for Use, and of which ten or twelve Drops are to be poured into Wine *.

The Soldier may also infuse Juniper-Berries in *Aquavitæ*, which he is to use moderately. He may also chew and swallow the same Berries, and drink a Glass of Wine or a little *Aquavitæ* after them.

'Tis also proper, once or twice a Day, to chew two or three Grains of Camphire, swallowing the Saliva; for 'tis hardly possible to conceive what happy and surprizing Effects are produced by this Resin in the Diseases of Camps.

Some Persons who greatly extoll Cannon Powder, will perhaps be surprized that I have not spoken of its Use when treating of the Disorders produced by the Sun. But I think it not proper where other Remedies can be had. I do not however disapprove of taking a Scruple or half a Dram of it in Wine.

Aqua-

* This is a Species of *Elixir-Proprietatis*, much of the same Kind with that of *Paracelsus*; which last may be had of the Apothecary, without the Soldier's taking the Trouble to prepare any.

Aquavitæ and Brandy are of great Use in Mines, whether they are snuffed up the Nostrils, or taken by the Mouth ; whether the Soldier respires the Air thro' his Hands, moisten'd with them, or rubs his Ears, Forehead and Temples, with them. These Liquors may be used in various other Manners, according to the Quantity and Diversity of Things put into them. But for my own Share, I prefer the Use of a small Quantity of these Liquors in their natural State.

Some of the Remedies above-mentioned; which are not to be found in the Fields, cost but very little, because a small Quantity of them is sufficient for a Dose.

The same Remedies are also beneficial for those who are obliged to guard the Trenches, or remain in Places where the Earth has lately been digged up. They may also be used in Fogs, and during the Fall of Dews.

I shall add to what I have said concerning kindled Brimstone, that the Soldier ought now and then to use it in his Tent, after his Labour is over, especially if he observes a Languor of his Spirits and Senses, and perceives himself affected with a certain Heaviness and Littlefness. He may also carry with him a Piece of Cotton-
Wick

Wick dipt in Sulphur, which being kindled at his Match, will diffuse Exhalations, which he is to respire, in order to remove the Injuries the bad Air may have done him.

When the Soldier is in a foggy Air, he ought often to respire the Air thro' his Hands, dipt in Spirit of Wine, with which he is also to rub his Nostrils, Ears and Temples. When he is about to march, he ought carefully to cover not only his Head, but also his Forehead, Ears, Chin and Neck; for it is highly injurious to Health to expose these Parts to the Fog. By this Means he also preserves about his Mouth and Face, an Air which is as it were natural to himself, and capable of defending him against the Fog.

'Tis only during the Night, and some Hours before the Rising and Setting of the Sun, that the Dews fall; so that by means of certain Precautions 'tis easy to defend ourselves against them, since we know that they may prove highly injurious to Health.

All the Diseases arising from these Causes may be easily prevented, by taking more Care and Pains in the Construction of Tents, as is obvious from the subsequent Chapter; for it is not impossible to breathe a salutary Air amidst Fogs and Dews.

Tho'

Tho' the Soldier who stands Sentry, or is upon a March, cannot defend himself from the Fogs and Dews, yet he is only exposed to them for a little Time, and may prevent the Diseases I have mentioned by using the Precautions I have directed ; for 'tis only the Continuation of Hardships and Misfortunes which prove injurious to Men, who for several Days can bear certain Accidents and Calamities, provided they do not afterwards live in too foolish and negligent a Manner. Whereas those who live without any Care or Precaution, so as to destroy their Constitutions by reiterated Errors, soon repent of their Folly.

The Man, for Instance, who after having been exposed to Fogs and Dews, uses crude and weak Aliments, or such as contain no Juice nor volatile Parts, and who drinks Water, will become sick in a short time : Whereas he who takes care of himself according to the Instructions I have given, and eats warm and salutary Aliments, with some Aromatics in them, such as Penny-royal, Thyme, Cinnamon, and Nutmeg, or who eats Cresses with his Bread, shall continue in Health.

C H A P. IV.

Of the Precautions to be used by the Soldier when going to Rest.

THE Ancients, as we are inform'd by Galen and others, were of Opinion, that Men had learned many excellent Remedies from Animals. This appears highly probable, and I'm of Opinion, that we may still learn more from them, since they daily do Things which have a Tendency to relieve their Necessities and prevent Diseases. Tho' every Animal has a peculiar Instinct, yet we observe that they are almost all equally careful in the Choice of a Place for Rest. They generally search a Place proper for every Season of the Year, suited to the various Necessities of Life, and shelter'd from Cold, Wind, Rain and Sports-men. 'Tis certain, that in providing Places of this kind, they use a Degree of Industry, without which they could not long subsist.

If we advert to the Industry of Birds in the Building of their Nests, or the surprising Art of Bees in the Construction of their Hives, where they sleep in Safety, and are either employ'd in making

making Honey or in propagating their Species, we will not be ashamed to take these Animals for Masters in the Choice of a Place to sleep in; for it is of great Importance to the Preservation of Health to sleep in a Place where we are cover'd and defended from every thing which may prove injurious to us. Such Places are not hard to be found; for every Man has not occasion for a Palace; since a mean Apartment, a Cave, a Cottage, or any other Place where he is defended from Wind, Rain, and Sun, are sufficient. Nay, he has no occasion for any more than a Hole or Den, which Animals, furnish'd with less Knowledge than he, never fail to find.

But Man, by some unaccountable Infatuation, or a culpable Negligence, never fails to make the worst Use of the Advantages he enjoys, otherwise he might be as happy as the Condition of his Nature would permit.

Soldiers are generally guilty of various Transgressions, both against the military Laws and the Care they ought to take of their own Healths, by the small Precaution they take in preparing and placing their Tents, and in the Choice of the Place in which they lie; so that the Sleep which ought to restore and augment their Strength, often renders them worse and more languid.

Some,

Some, thro' Ignorance, fix their Tents on one side of a Mountain ; whereas he ought perhaps, according to the Laws both of War and Medicine, to have placed it on the other, or even on the Top of the Mountain, where the Air is generally most pure.

Others, without adverting to the adjacent Ground, fix their Tents in low-lying Grounds, to which, if it rains, large Quantities of Waters are convey'd, so that they are, as it were, surrounded with a Marsh ; or suppose it should not rain, yet if the Enemies should alter the Course of the neighbouring Rivers, they are either drown'd or carried off with their Tents and all they have.

Some shut their Tents towards the Quarters whence wholesome Winds blow, and open that Side which is expos'd to such as are unwholesome. Others so dispose their Tents, that they cannot open and shut them when they please, either to give Access to the salutary Winds, to observe what passes arround them, to defend themselves from the Sun, or to screen themselves from the Fog and Dew.

Some do not stretch their Tents sufficiently, so that they sink into Cavities, in which the Rain stops, penetrates thro' the Cloth, and often
falls

falls in the very Place where they sleep. Others are not at sufficient Pains to secure their Tents, and if the Wind, happening to blow in the Night, should overturn them, they either suffocate those who lie in them, or leave them thro' the Remainder of the Night exposed naked to the Injuries of the Air, Fog, and Dew. Sometimes the Soldier raises his Tent so high as to give Access to the Air and Winds at the Bottom; whereas he might have prevented this Inconvenience by putting another Curtain all around, and encompassing the Foot of it with Branches of Trees, Leaves, and Straw. Those who perceive no Injury they have sustain'd by sleeping two or three Nights exposed to the Air, do not advert to the Damages which they may afterwards receive by the sudden Changes of the Atmosphere; since a few Nights after the Fog or Dew penetrating into their Tents, may not only produce Diseases, but even prove mortal to them. Supposing there was neither Fog nor Dew, yet the Wind entering a Tent, dissipates the Atmosphere the Soldier has around his Body, and the frequent Change of Air is the Cause of various Disorders to him. It has been observed in most Countries of *Europe*, and especially *Hungary*, that Persons frequently die for no other Cause, but for want of an Atmosphere to remain about them when they sleep. This rarely happens in other Countries, and especially those near the Line.

Others,

Others, instead of so disposing of the Earth dug out of the Ditches around their Tents, as that it may prevent the Entry of Fogs and Cold, have it placed in such a manner as to facilitate the Entry of the Enemies into them. These Imprudencies and Pieces of Neglect, are however the Causes why some awake with their Cloaths all moist, why others are almost suffocated with Fog ; why some in the Morning are so weak, and others can hardly respire, on account of the Redundance of a thick and viscid Phlegm in his Throat.

Having spoken as much of Tents as my Subject demanded, I shall now shew the Method of defending the Soldier from the external Air when he sleeps.

In order to this then, we have nothing more to do, than to take Care that the Atmosphere round each Soldier be preserved longer or shorter according as his Case requires, and that there be no more Communication between the Air which is proper to himself, and the Air which surrounds, than he thinks fit.

We ought never entirely to hinder the Communication between our Atmosphere and the Air which surrounds it. It is not however necessary to be scrupulous or over-nice in this Affair;
for

For it is too difficult a Task to hinder this Communication; and unless we use extraordinary Care and Attention to prevent it, the Atmosphere around a Man will continually communicate with the Air which surrounds it. We ought therefore to do all we can to prevent this Communication, tho' we know that such a Prevention is not only prejudicial but also mortal; for either we shall never succeed in our Attempt, on account of its Difficulty, or if we succeed, we may afterwards obtain a Communication between our Atmosphere and the Air which surrounds it, by giving it Access thro' some Place we think most proper.

Every thing in Nature is more or less proper for hindering the Air which surrounds us from arriving immediately at us. For this Purpose we may use Stones, Trees, Boards, Faggots, Skins of Animals, Stuffs, Cloths, and other Things of a similar Nature. I have seen Cottages built with Straw, or the Leaves and Branches of Trees, which defended from the Cold and Heat better than Stone Houses, because these latter when they admit either Heat or Cold, retain it for a long Time.

Among all the Advantages we have mention'd, none are more beneficial and commodious, especially when an Army is on March, than Cloths and Stuffs of all kinds. However,
some

some are better than others, both for defending the Soldier from Rain, and screening him from the other Injuries of the Weather.

The Soldier in erecting his Tent, ought carefully to observe what I have before directed, that is, he ought to take uncommon Care in pitching it in Places exposed to unwholesome Winds, Fogs, and the Exhalations of Lakes and Marshes. Tents must be carefully stretch'd, lest they should fall into Cavities capable of retaining the Rain; and firmly fix'd, lest the Wind should overturn them. They must also be so closed at the Bottom, that no Air can enter, either by means of Earth, Branches and Leaves of Trees, Faggots, Wisps of Straw, or Curtains placed all around.

The Place most proper for pitching a Tent, is that which is least exposed to the Winds; and the Floor of the Tent ought to be cover'd with Board, Straw, Branches or Leaves of Trees, or some other similar Substance, that the Vapours emitted from the Earth may not act directly on the Body of the Soldier when asleep, and be respired by him.

Many Soldiers have a Custom, when they go to sleep, of covering themselves with their Baggage, by which means they, without knowing it, defend their Atmosphere from the Air which

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fur-

surrounds it; and 'tis certain, that if they are accustomed to this Practice, and receive no Damage by it, their Care has a Tendency to preserve Health. But some Soldiers are uneasy and cannot respire freely under so great a Weight. Besides, the Cloths generally become moist by the Quantity of Vapours emitted from the Body of a Soldier whilst asleep; and these Vapours becoming cold by means of the external Air, are inspissated and converted into Water; a thing highly prejudicial to the Soldier's Health. 'Tis therefore far better for the Soldier to cover himself with fewer Things, and to wrap a Cloth so about his Body as not to cover his Face, by which means the Air contain'd in the Cloth will be sufficiently warm'd by Respiration, the Atmosphere preserved, and Health promoted.

This Practice is far more beneficial than to be overburden'd with Baggage in the Night-time. Such a Cloth as I mention may be easily had, and is often seiz'd from the Enemy, as well as many other Things useful for the Soldier. The same Advantage may be procur'd by means of Matts or Coverings made of certain Herbs, and those may be easily prepar'd by Soldiers.

Officers who have Chariots or Waggon's may more easily procure a commodious Bed, either for themselves or Friends, by placing these in their Tents, and covering them close on all Sides;
since

since by means of the Wheels they will be raised to a greater Distance from the Ground, and lie on Wood, which is no small Advantage.

Tho' a Soldier has only a Tent or Cottage to sleep in, without the Advantage of a Chariot or Waggon, 'tis expedient to purify the Air by means of a Fire; and if he has a Chariot, it may be well cover'd, and the Air of it warm'd by two or three Lanthorns with lighted Candles in them, which will be sufficient for a Place of so small an Extent. We may also, in particular Circumstances, gently perfume the Air with some Substance appropriated to the Constitution and Temperament of the Person who sleeps in the Tent.

I might enlarge a great deal more on this Subject, but I think it better to pass over some Things in Silence, than to weary the Soldier by too tedious Narrations. But in a Word, he ought to remember that his principal Precaution consists in preserving his Atmosphere; and that it is by no means expedient to load himself with Baggage, provided he prevents as much as possible the Communication of the Air around his Body with that which encompasses it. This is what the Beasts aim at when they retire into Caves, and dig Holes for themselves.

C H A P. V.

Precautions to be used by the Soldier when he awakes.

IF the Soldier does not at Night lay his Clothes in a Place where they may be screen'd from the Rain, the Fogs and the Dew, he will often find them wet or moist in the Morning; and if he puts them on in that Condition, he will fall dangerously ill the same or the succeeding Day. This Misfortune however happens rarely, since the Soldier for fear of being robbed, generally lays his Clothes below his Head, or lies with them on, in order to be in Readiness when he is call'd.

If the Soldier, when he awakes, perceives that his Clothes are moist, because he has not been at Pains to preserve his Atmosphere, he may probably find this the smallest of the Misfortunes which have befallen him that Night, since those who are not at Pains to preserve their Clothes from the Humidity of the Air, are generally guilty of a great many other Errors in Regimen. In a Word, as they sleep with their Faces uncovered, they must necessarily respire an Air im-
pregnated

pregnated with Fog or Dew, accordingly as it happens, which may prove much more prejudicial than putting on their Clothes moist.

Granting that nothing of what we have mention'd should happen, and that the Soldier should prevent the Corruption of the Air which is round him during the Night, yet because he has slept for many Nights together with his Clothes on, such Obstructions are form'd as produce various Diseases, very frequent in Camps. Soldiers also in Consequence of this Circumstance, contract a great deal of Sordes about their Bodies, and engender an infinite Number of Vermin, which are very troublesome to them.

I shall never advise the Soldier to throw off his Clothes when he goes to Bed, unless he can do it safely; and even in this Case I would have them made in such a manner, that he may both put them off and on with great Expedition. Various Precautions are also to be taken, in order to prevent the Diseases of Soldiers who are not accustomed to lie with their Clothes on, provided they are reduced to a Necessity of doing so.

In the Morning then, when such Soldiers awake, or when they have any spare Time, they ought to throw off their Clothes, and for some Time rub their whole Bodies, especially their Thighs, Arms, and Shoulders; not forgetting

to exercise themselves like Wrestlers, in a Place which is dry and not exposed to the Winds. By this Means they will not only defend themselves from the Disorders arising from an Obstruction of Perspiration, which are very numerous and dangerous, but also render their Bodies more alert, and better disposed for every thing they undertake.

What I advance might be confirm'd by various Reasons, and many Examples drawn from Antiquity; for among the Ancients, People wore Clothes which were easily put off and on, and frequently exercised themselves in Baths and Academies appointed for that Purpose. But the Soldier who is convinced of the Truth of what I propose, has no occasion for Reasons and Examples to induce him to the Practice of it.

Various Medicines may be used for destroying the Vermine engender'd in Camps, but we ought carefully to reject those sold by Mountebanks, which contain a great deal of crude Mercury; since these Preparations may become highly prejudicial by exciting too copious a Discharge of the Saliva, or by some other Means. 'Tis therefore far better to prevent the Generation of these Insects, which may in a great Measure be obtain'd by the Frictions above directed.

Besides,

Besides, an innocent Medicine for this Purpose may be prepared by infusing dry Tobacco Leaves in Wine, with which the Body is to be rubb'd. The Smoak of Tobacco also quickly destroys a great many troublesome Species of Vermine; and if the Smoak of Tobacco is offensive, Yarrow, or any other proper Substance, may be substituted in its Room.

CH A P. VI.

Of the Exhalations arising from Carcasses and Excrements.

AS the Exhalations arising from the putrifying Carcasses of Animals mix with the Air we respire, and may by that means become very prejudicial, I shall say something concerning them, which may at the same Time teach the Soldiers to prevent the great Quantity of Insects which they engender, and which are very troublesome both to the Men and the Horses.

Those already acquainted with the great Advantage of interring Carcasses, may perhaps expect something new on this Subject; for Men frequently despise what is easy, tho' it might be

highly beneficial for removing the Disorders with which they are afflicted.

The *Turks*, in order to preserve Cleanliness in their Camps, inter the Excrements of the Men in Ditches. Our Soldiers do not resemble them in this, since they often ease Nature beside the very Tents of their Generals. It was observed at the Siege of *Vienna*, the *Turks* interred not the Bodies of their Companions, nor the Carcasses of Horses and other Animals which died in their Camp, which was a surprizing Piece of Negligence, considering their Regard to Cleanliness.

In many Countries 'tis accounted infamous to touch the Carcasses of Horses and other Animals ; and in some Nations 'tis thought more scandalous to touch a dead Dog or Horse, than to steal such as are alive. The Inhabitants of those Countries will not blush to keep Company with a profess'd Robber, but they will carefully avoid a Person who has kill'd a Dog with a Stone or Stick, or touch'd a dead Horse. The Man is still look'd upon with more Horrour if he has interr'd the Horse, or taken the Saddle, Bridle, or Shoes off him. 'Tis even said, that a Man, for having done a Thing of this kind, was forced to quit the Town in which he lived, in order to get rid of the Insults of the People. It has also frequently happen'd, that Horses have been permitted

mitted to rot in Walks, and near the Tents of Generals, because nobody could be found to inter them.

In Countries where this foolish Prejudice does not prevail, they skin Horses, Dogs, Cats, and other Animals, after they are dead, and throw their Bodies into Places where they can do no Harm. These Skins are employ'd for various Purposes, and are a good Commodity to the Proprietor. At the Siege of *Buda*, the Person who would have taken off their Skins and sold them, might have reap'd a very considerable Advantage.





P A R T IV.

The Means of preserving Soldiers from some particular Disorders which are most frequent in Camps.

TH O' in the Examination I have hitherto made, of the general Causes of the Disorders which may afflict Soldiers, I have laid down Directions for defending themselves against these Disorders; yet I think it proper to add something concerning each of them, that the Soldier may the more effectually prevent those Diseases which are most frequent in Camps, such as Diarrhæas, Dysenteries, petechial, tertian and quartan Fevers, Head-achs, Pains of the Joints, Coughs, Difficulty of Respiration, Obstructions of the Viscera, Tumors of the Abdomen, and many others of a similar Nature.

But since the Diseases of Camps are not entirely the same every where, and in all Years, as is observable in *Hungary, Utrecht, Rome, and Naples*, and as it would be too tedious and difficult particularly to consider all the Diseases which may happen in every Country, 'tis expedient I should

should first of all lay down a Method to be used by those who incline to preserve themselves from Diseases in general.

CH A P. I.

An Enquiry into the Means of preventing Diseases in general.

ALL Physicians have placed Repletion and Inanition among the Class of Diseases, and unanimously agreed, that proper Measures should be taken both for the Prevention and Cure of each : For it rarely happens that Repletion immediately causes a Disease ; for which Reason it may be prevented by Inanition, concerning which the same also holds true. But tho' these kinds of Diseases comprehend a great number of particular Disorders, yet they do not include those which consist in the Modifications of Matter, and which are far more numerous than the others. *Capucci*, for Brevity's sake, reduced all, or nearly all Diseases, to two Classes ; asserting, that all Disorders, Indispositions, or Symptoms of whatever Nature, were produced by Addition or Subtraction ; and that one or t'other of these tended both to prevent and cure them. These two Classes, indeed, comprehend Repletion and

Inanition, as also the various Modifications of Substances; for all the Modifications of the Body, which can possibly fall under the Cognizance of the Imagination, have a certain Extent to which we may add, or from which we may subtract; and by the Addition or Retrenchment in the Bulk of the Modifications, the Substances themselves receive a great many new Forms which are different from each other. He illustrates his Opinion by the following Examples.

We may, says he, in Motion consider a Velocity which may be either augmented or diminish'd. Consequently, if a Disease is produced by too rapid a Motion of any Substance in the Body of an Animal, the Diminution of this Velocity becomes a Remedy for the Disorder. If it is produced by a particular Configuration of Parts, it is to be cured by inducing a proper Change in the Situation and Arrangement of these Parts. This Change is the same as if we took some Part from one Body in order to add it to another; or, in other Words, 'tis the same as transposing the Parts of a Body; for by this last Operation we change one Figure into another, more or less advantageous. If the Disease is produced by a Disorder of the Parts, it will cease by a proper Addition or Subtraction. *Capucci* reason'd in the same manner with respect to various other Diseases.

When

When his Scholars ask'd him, Whether it was most easy for the Physician to add or subtract? He answer'd, That in most Disorders Addition was the most difficult, because it is almost always the Work of Nature alone; whereas Subtraction might be obtain'd by various Means, not only by the Assistance of Nature, but also by the Prudence and Skill of the Physician, which is a great Advantage.

He asserted however, that a proper Subtraction was very difficult to be obtain'd in many Cases, and that Physicians often knew not how to subtract from the Disease, without at the same time subtracting from the Patient what might be useful to him; and that after a vast Number of Evacuations they have not succeeded in eradicating the smallest Part of the Cause of the Disorder. This is a Truth known by all Physicians, who try all Remedies, such as Purgatives, Emetics, Sudorifics, Diuretics, and others, in order to find some Specific for removing the particular Disorder they treat. In a word, Experience has taught us that it is not sufficient to purge or vomit a Patient, or excite a Discharge of Sweat or Urine, but that one Remedy is more proper for the Cure of each particular Disorder than another.

This

This Difference does not consist in the greater or smaller Quantity of the Matter evacuated ; since 'tis often observable, that in venereal Diseases, for Instance, a moderate Evacuation procur'd by Coloquintida, is more beneficial to the Patient, than a more copious one excited by Manna or any other Purgative. In a word, all purgative Remedies do not equally evacuate what is hurtful, so that the Humours left in the Body are not equally alter'd by them. Hence it is that in all Remedies, of whatever kind, we often seek for some specific Quality. Sometimes however, 'tis not necessary to be too uneasy in this respect ; for among the numberless Changes which may happen in the Condition of the Diseases, severals may occur which are capable of curing the Patient.

What I have advanced gave occasion to many to enquire wherein the Force of specific Remedies consisted, some maintaining that it consisted in the first, others in the second, and others in the third Qualities of Bodies.

These Speculations gave occasion for others relating to Temperament and Constitution. Most asserted, that the Temperament of each particular Man did not consist in the Mixture of what we call the four primary Qualities, nor in the Combination of two or three of those Qualities,

lities, nor even in the Concurrence of all the four; but in the Structure, Composition, Assemblage, and Arrangement of the Parts of the Body, whence result what we call Temperament and Constitution.

The Abettors of the last Opinion asserted, that it was the Doctrine of *Hippocrates*, and that *Galen* every where inculcated, that the Virtues of most Remedies, whether noxious or salutary, did not consist in Heat, Cold, Humidity or Dryness, but depended upon Substance in general. As the Composition of Medicines is often unknown, *Galen* asserted, that their Virtues consisted in occult Qualities; for with Physicians and Philosophers, every Thing, even of the most perplex'd and obscure Nature, must have a Name. These Persons also maintain'd, that a Clock, or any other Machine, has a particular Temperament; since every Thing that exists has a certain Structure or Arrangement of Parts, by which some particular Effect is produced, which may be look'd upon as proper to the Machine producing it; and which may arise from its Temperament, that is, from the Assemblage and Structure of its Parts.

Capucci related many Examples, illustrating the Cause of the Virtues of specific Remedies, and the Reason why some Medicines produced Effects not to be observed in others. The Examples he adduced are these following.

If

If, says he. we incline to take Pitch or Turpentine off any Part of our Bodies, we cannot obtain this Effect by Water, Wine, or Mercury, but by Oil.

If we have a Composition of Salt and Earth mix'd together, and incline to dilute the latter and reduce it to impalpable Parts, neither Oil nor Mercury, but only Water will produce this Effect.

But Mercury is a Specific for separating Gold from Earth, as *Aqua fortis* is for separating Gold from Silver.

If we want to see Objects inverted, we must use concave or convex Glasses adapted to that Purpose. *Capucci* observed, that all Tradesmen had Instruments destin'd for particular Purposes, asserted that they were good Tradesmen who knew how to employ these Instruments properly, and that none but ignorant Persons despised the Comparisons drawn from mechanic Arts, since Nature includes all the Mechanism of which we can form any Ideas.

My Design in relating these Sentiments, is not only to indicate to the Soldier the surest Method of preserving Health in Camps, but also to convince him that the Doctrines of most Physicians

scians and Philosophers are false, and founded on weak Principles ; that the Generality of these Men involve themselves in a thousand Labyrinths, from which their continual Disputes can never extricate them, because they never discover the Falsity of the Hypotheses which they advance with respect to natural Causes, and which are the Foundations of their weak and frivolous Reasonings.

Besides, we may establish sure and general Rules for preventing many kinds of Diseases, without composing a Work including the Detail of every thing which contributes to the Preservation of Health. It does not however follow from this, that People will never be sick ; for 'tis hardly possible to enjoy a constant and uninterrupted State of Health.

Now the Method of preventing a Disorder, is to use such Remedies as have a specific Virtue against it, and to abstain from those which are too violent, and capable of producing preternatural Commotions in the Body ; since these rather do Harm than Good.

I call those Remedies too strong, which produce too violent a Vomiting, Purging, or Sneezing, or occasion too copious an Evacuation of Sweat or Saliva. Those Medicines are also too strong, which, after the Vessels are in any manner
open'd,

open'd, either by Cauteries or Veficatories, procure a Discharge of the Blood; as also those which procure a too profound Sleep, or have a Tendency to communicate too violent a Motion to the Fluids of the Body.

Tho' these Remedies are sometimes of great use in the Practice of Medicine, yet it is by no means proper that every one should use them according to his own Fancy, and without the Advice of Physicians, who, notwithstanding their Skill and Experience, are often mistaken.

Those who are relieved by Vomiting, may procure that Effect by thrusting their Fingers, a Piece of Paper, or the Leaf of some Tree or Plant into their Throats. This Practice generally facilitates Vomiting, especially if a Person has drank copiously, as Drunkards find from their Experience. Besides, if this Method should not excite a Vomiting, yet the Efforts it produces are not useless to open the Emunctories of the Mouth, Throat, and Œsophagus. Such Efforts also frequently correct the Disorders of these Parts, and of the Stomach.

If the Soldier is costive, 'tis sufficient now and then to procure a Solubility of Body by means of a Suppository made of salt Butter, Bacon, Hog's or Ox's Gall, *Venice* Soap, the Leaven of Wheat mix'd with Salt, or other similar Substances. In

a word, this Species of Indisposition may be removed by a simple Clyster of salt Water, prepar'd with a little Fat. Some Persons eat Aliments proper to keep the Body soluble, such as Beets, Mallows, and Raisins boil'd in Water, Cream of Tartar taken in Broth, Wine, or Vinegar, in which Senna has been infused, Cassia, and other Things of a similar Nature.

The Soldier who has not a sufficiently copious Discharge of Urine, may remove this Misfortune by putting Chervil and Parsley into his Aliments, by drinking out of a Vessel made of Ash; or by drinking an Infusion of the Ash or Pine-Trees bruised. In some Persons this Intention is answer'd by putting Lemon-Juice into Water or Broth, especially when there is a Necessity of correcting a too exalted State of the Bile. Others have their Bodies render'd soluble by taking a scruple of Salt Petre, Mineral Crystal, or Cannon Powder.

In order to facilitate Transpiration, 'tis sufficient to use proper Exercise, the Opportunities of which are abundantly frequent; and if the Soldier should be deprived of such Opportunities, yet he has at least a Power of exercising his Body so as to render it sufficiently agile for performing his Duty and engaging his Enemy.

In order to procure a sufficient Quantity of Saliva in the Mouth, nothing more is requisite than frequently moving the Jaws and Tongue, and putting the Finger into the Throat now and then. As for the Mucus discharged from the Nostrils, 'tis sufficient, without using white Hellebore, or any other drastring Medicine, to wipe the Nose now and then, and keep the Leaves of Betony, Sage, or Marjoram, in the Nostrils. I do not speak of the Use of Snuff, which is often abused by Men accusom'd to it : We must however observe, that in order to stimulate the Nostrils, and excite Sternutation, nothing more is requisite than to look at the Sun, with the Eyes half shut. It is also expedient to keep the Ears clean, since by this means we facilitate the Discharge of various Humours, and prevent many Diseases.

Tho' Frictions of the whole Body, and particular Parts of it, do not produce the same Effects with Caustics and Vesicatories, which in the present Case are not to be used, because we do not here treat of Persons already sick, but of such as are apprehensive of being so ; yet 'tis certain that long-continued Frictions, with coarse Cloths, are of great Efficacy both for the Prevention and Cure of various Disorders.

'Tis

'Tis easy for sober Persons, without any Danger, to procure a Sweat and agreeable Sleep, by drinking a little more than they usually do. Purslain or Lettuce boil'd in Broth, will produce the same Effect; but we ought carefully to abstain from strong Narcoticks, unless a skilful Physician orders them in Cases of absolute Necessity.

Before we treat of the Diseases in general, incident to Men in Camps, 'tis proper to make Choice of some particular Disease as an Example, and at the same time point out the best Method of preventing it. We shall therefore in the first Place consider an Apoplexy.

If then a Man does not wilfully destroy his Health; if he is sober, and takes Care to facilitate Transpiration; if he is at due Pains to have all the Excretions made by their proper Emunctories; and if he frequently uses Rosemary, Sage, Penny-royal, Rue, Bay-berries, Castor, Preparations of Clove, Gilly-flowers, and various other Remedies accounted Specificks against the Apoplexy, he will not in all Probability be seized with this Disorder.

There are various manners of using these Remedies, which are not the only Medicines proper in this Case; and we may of these compose
others

others equally good, both for internal and external Use. We may, for Instance, chew Rosemary, or use it in Fumigations. We may also sprinkle the Powder of it on Aliments, especially such as are roasted; or we may by Distillation extract an Oil from it, of which three or four Drops may be taken in Broth, or we may now and then use about the Bulk of an *Eleosaccharum** prepared of it.

We may with equal Success, instead of *Hungary* Water, use Spirit of Wine, in which the Leaves and Tops of Rosemary have been infused. Of this Liquor we may drink a few Drops, and rub the Nose with some of it.

The Pleurisy is a Disorder which often proves mortal, but which may be prevented by means of the general Remedies above-mentioned, and by taking Care to be well cover'd and defended against violent and severe Colds. There are many other Remedies of great Efficacy against this Disorder, such as the Flowers of the wild Poppy, Crabs-Eyes, the Tooth of the wild Boar, Harts-horn, the Jaw-bone of the Pike, Goats-Blood,

* *Eleosaccharum* is a Mixture of any Essence or essential Oil with Powder of Sugar-Candy, or common Sugar.

Blood, Horses-Dung, Incense, Apples roasted under the Ashes with some Grains of Incense in them, *Carduus Benedictus*, Chamomile, and many others prepared in different Manners.

Thus, for Instance, we may reduce the Flowers of the wild Poppy to a Powder, which may be taken in Broth or any other Aliments. Of these Flowers we may also make a Conserve, in the same manner with that of the Flowers of Borrage. They also yield a Juice which is to be made into a Syrup, and an excellent Tincture may be prepar'd of them, either with common Water, or rather with Barley or Baum Water.

By infusing, or digesting for some time, in two Pints of the Water of *Carduus Benedictus*, an Ounce of Aloes, Saffron, and Myrrh, and afterwards subjecting the Liquor to Distillation, we obtain a Remedy which is highly efficacious against the Pleurisy, and of which a Spoonful or two may be used every Morning. This Distillation ought however to be perform'd by a slow Fire, and not continued to Dryness, since, by this Means, the Liquor would be too disagreeable. Various other Medicines are also highly beneficial against a Pleurisy.

If a Soldier suspects a Clap, he is to wash his Penis in a Solution of Alum, or rather Vitriol,
in

in common Water ; after which he has nothing to dread. But this Remedy is only generally beneficial when used a Day or two after the Infection is received.

I have always been of Opinion, that Prevention is more easily obtain'd than a Cure. If it should be said, that the Assistance of Physicians is useless in order to produce this Effect, I answer, That it is often equally useless for the Cure of Diseases : Nay, I venture to say, that their Counsels are often highly prejudicial. But this is only meant of such as have neither Learning nor Experience, sufficient to qualify them for Physicians.

C H A P. II.

Of the Means of preserving Soldiers from the Dysentery.

NUMBERLESS Remedies. both of a simple and compound kind, may be prescribed for the Cure of a Dysentery ; but as it would be no easy Task to mention the whole, I shall only specify such as are most simple, cheap, and efficacious. As every Person has his particular Sentiments, and almost on all Occasions most chearfully uses the Things he has before used,
tho'

tho' they are less efficacious than others, I leave every one to use the Remedies he thinks most effectual to afford him Relief: But those who have no particular Remedy of their own for the Dysentery, may use any of the following.

The Remedies then against this Disorder, are Southernwood, Wormwood, curled Baum, Roman or Garden Mint, Tormentil Roots, the Fruit and Roots of the Raspberry-Bush *, Pine-Nuts, Nutmeg, *Mays*, Crabs, Ivy, and a great many others.

Southernwood and Wormwood stop a Dysentery if a small Quantity of them is eaten, if they are applied to the Abdomen, or held in the Hand. They may be taken together or separately, and infused in Wine or Water, of which the Patient is to drink a little. If Roman Wormwood is used, it will not be very disagreeable to the Taste. Conserves of Southernwood and Wormwood may be also used twice a Week, taking about the Bulk of a Nut in the Morning, and drinking afterwards some Broth,

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* We may with equal, if not more Success, use Black-berries, and the Roots of the common Bramble-Bush, which are to be found every where.

or a few Spoonfuls of warm Water. The Oils of Southernwood and Wormwood may also be prepared by Infusion, with which the umbilical Region is to be now and then anointed.

There is also an Oil obtain'd from Wormwood by Distillation, which may be of great Use to prevent Fluxes of the Belly, by swallowing some Drops of it, and rubbing the Abdomen with it.

We may more frequently use curled Baum, which is a sovereign Remedy against Weakness of the Stomach and Disorders of the Intestines. We may, if it is recent, chew and swallow it, or eat it with Bread or the other Aliments we commonly use. The Juice of it is highly efficacious, but 'tis sufficient for the Soldier to chew and swallow the Leaves. If it is dry, it is to be reduced to a Powder, and drank in Wine, Broth, or warm Water. It is also to be mixed with the Aliments. We may by Infusion prepare a Water of it, as is directed in *Part II. Chap. 7.*

It is also applied externally, either alone, or mix'd with Wormwood, Southernwood, and other similar Herbs; or these Plants are reduced to a Powder, and by means of Cotton form'd into medicated Bags, in the usual manner.

The same Method is to be taken with that Species of Baum, which some call Roman Baum, and others the Lady's Plant, which is much more efficacious when new, than when dry. When fresh, it is to be put into Cakes, bak'd with Butter or Goat's Fat; or it is to be boil'd in Broth mix'd with Eggs. The Smell of this Plant greatly refreshes and revives.

In bloody Fluxes and Diarrhoeas, Tormentil Root is of great Efficacy. The Soldiers therefore who want to guard against these Disorders, are to put about the Bulk of a Nut of this Root into their Mouth, till it softens, after which they are to chew and swallow it. They may also mix a Dram of the Powder of this Root with Sugar of red Roses, or with Water, Wine, or Broth. This Preparation, when frequently used, is a noble Remedy for preventing Dysenteries.

Raspberries are generally ripe at the Time when Dysenteries are most frequent. They may be preserved a Year when dry, and are highly beneficial in whatever manner they are taken. We may also, with the Root of this Bush, prepare a Water and various other Remedies.

Pine Kernels, when new, are also highly beneficial; for they contain a resinous Sub-
H 2
stance,

stance, the Taste of which is perceptible when they are old, and 'tis this which renders Pine-Water so salutary. These Kernels may be eaten either alone or with Bread, or reduced to Powder, and taken every Morning with Broth and a little Nutmeg.

All Authors greatly extol the Efficacy of Nutmeg, tho' most of them are ignorant why it is beneficial in Fluxes, and proper to prevent Dysenteries. It is good either when swallow'd alone, or mix'd with Eggs or other Aliments. The Patient may use two of them every Week. About the Bulk of a Pepper-corn of the Oil extracted from it, taken in Broth or warm Water, produces happy and surprizing Effects. The Umbilical Region may also be rubbed with it.

The Oil of Nutmeg by Expression, and those of Wormwood and Mint by Distillation, are excellent for fortifying the Abdomen and allaying Pains of it. The Patient may also sometimes swallow the Bulk of a Pepper-corn of it.

'Tis generally believed, that in all Countries where Diseases are produced, there are also Remedies capable of curing them, and that the Antidote is not generally far from the Places where venomous Plants grow. Tho' this is not universally true, yet 'tis certain that in Rivers, Lakes,

Lakes, Marshes, and other Places which produce Diseases among Soldiers, there are Crabbs to be found, which are an efficacious Remedy for removing the Diseases of Camps, and especially Diarrhoeas and Dysenteries. They may be prepared in various manners.

1. They may be boil'd in Water with Parsley, Chervil, Butter, Oil, the Fat of Beef, Goat's Flesh, or Mutton.

2. They may be roasted on the Spit.

3. After they are sufficiently dried before the Fire, they may be reduced to a Powder with their Shells, and of this Powder two Drams may be taken twice a Week in Broth or warm Water.

4. There are in Crabs certain small Stones, commonly called their Eyes, tho' they are not really Eyes: If these are bruis'd, and a Dram of them taken, they cure Diarrhoeas, Dysenteries, and the Disorders which, according to Physicians, are produced by Acids. They are a much more efficacious Medicine than Pearls.

'Tis said that the Jaw of the Pike is possessed of the same Virtues; and many greatly extol

the Powder of *Langius* against the Dysentery *. It is composed of an equal Quantity of Pike's Jaw, Hart's Penis, Pomgranate Bark, calcin'd Hart's-horn, Armenian Bole, and the Seeds of the Herb wild Patience. I believe all these Ingredients, conjunctly or separately, are of great Service in Diarrhoeas, Dysenteries, and other Fluxes.

I must not forget to speak of the Hare, because it is frequently found in the Places where Soldiers encamp. Its Flesh, when roasted, stops Dysenteries; and every Body knows that its Blood, when dried, produces as happy Effects in Bloody-Fluxes, as that of Goats in a Spitting of Blood, which afflicts pleuretic Patients. I remember *Galen*, for a Dysentery, greatly extols Goats Blood, dried and reduced to a Powder. I have never tried this Remedy myself, but I knew two Patients afflicted with a Dysentery cured by it. I'm persuaded that many of the Remedies I have in the first Chapter specified as good in the Pleurisy, are also beneficial in the Dysentery.

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* Dry in an Oven the Penis of an Hart, and the Jaws of a Pike with their Teeth; reduce to a Powder with Pomgranate Bark, and the Seeds of the Herb Patience; then pulverize calcin'd Hart's-Horn and Bole. Mix all together for a Powder to be kept for Use.

The same may be said of the Liver of the Hare, or even of almost every other Animal reduced to Powder.

'Tis probable that the Livers of Animals are good for Dysenteries, because they contain many Vessels, in which there still remains a little Bile, which by its Analogy with the Bile separated in the Liver of a living Person, assists that important Secretion. In like manner the Stomachs of most Animals are beneficial to facilitate the Operations of the Stomach, on account of their containing a certain Ferment which tends to promote Digestion. The same Reasoning extends to Foxes Lungs, and a great many other Substances. 'Tis certain, that Fluxes are generally produced by a considerable Peccancy of the Bile, and that in these Disorders, for various Reasons, the Principal of which is the bad State of the Bile, the Digestion of the Stomach and Intestines is almost always bad.

C H A P. III.

The Means of preventing Diarrhœas.

A Diarrhœa is almost always the Consequence of a Dysentery. It also frequently precedes it, and often, during the Course of a long Disease, the Dysentery changes into a Diarrhœa, and the Diarrhœa into a Dysentery; but the Remedies which are beneficial in the one are generally so in the other also. In a Word, the same Cause, accordingly as it is determin'd by various Accidents which concur to produce the Disorder, or accordingly as it affects one or another Part of the Body, may form Abscesses in the Intestines, disorder the Passage of the Fluids, produce Ulcers, and so change the Organs subservient to the various Secretions, that they can no longer be carried on according to the Laws of Nature. The same Cause may also force the Intestines to discharge into their Cavities Liquors, which naturally ought not to be there, and cause such a Disorder, that they contain more Liquors than they ought; little or none of which enters into the Vessels. Hence the Remedies capable of destroying, surmounting, or correcting this Cause, are proper against the Disorders produced by it.

Phy-

Physicians however assert, that some Diarrhœas arise from other Causes than those of the Dysentery, and consequently demand other Remedies. Of this kind are almost all those Diarrhœas, in which the Matter discharg'd, without any Pain or Injury to the Intestines, is not mucilaginous, resembling Shreds of the Bowels, nor excessively ill-smell'd. Now these Diarrhœas may be caused by a Defect of Respiration, which forces the Humours to regurgitate to some Part of the Body, as the Stomach and Intestines, without producing any Danger of a Dysentery. These Diarrhœas may also be produced by the Fault of the Things destin'd to correct the Aliments, in consequence of which the Chyle cannot mix with the Blood, nor contribute to Nutrition as in a State of Health. These Diarrhœas are of various kinds, and Physicians often confound them with such as form Abscesses, which cause Evacuations of Blood and Pains of the Intestines. There are however many Remedies which are better for one Disease than for another, and which may be safely used in all the kinds of Diarrhœas; for which also other Medicines are equally proper.

As I have in the preceding Chapter spoken of Tormentil Root, Crabs Eyes, and many other Remedies beneficial against Dysenteries and Diarrhœas, I shall in this consider such as are good against a Diarrhœa; among which there are also

many serviceable for the Dysentery. This very frequently happens; for as the same Cause produces various Diseases, so one Remedy may produce different Effects equally beneficial.

Many of these Remedies are prepared with Iron. Such is the Water specified in *Part II. Chap. 7.* which may be prepared by frequently extinguishing a red-hot Iron into it. But the Method I there specified is more commodious and beneficial for the Soldier. He may use this Water for preparing his Aliments, and for common Drink. He may also mix it with any other Liquor.

We may also make a Wine impregnated with Iron, which is excellent for correcting those Juices which cause Diarrhœas, and for removing those Obstructions of the Vessels which frequently produce them. Such a Wine is prepared by soaking in it a Piece of Steel or Iron for four or five Hours, or longer if it is wanted strong.

We may with Steel and distill'd Vinegar prepare an Extract which is highly efficacious, both for curing and preventing Diarrhœas. Some Drops of this Extract are to be put in Broth, Wine or Water. This is by many thought an Arcanum of great Value.

Many

Many young People of both Sexes use this Medicine with great Success in various Diseases. I make this Remark in order to shew, that 'tis more easy to be deceived in the Use of Quinces, than in that of Water or Wine impregnated with Iron.

I don't however condemn the Use of Quinces, since when boil'd in Water, or roasted under the Ashes, they are excellent for strengthening the Stomach and facilitating Digestion, by which means they stop the Diarrhoea.

The Wine prepared of Quinces is possessed of the same Virtue, but their newly-express'd Juice is of so acrid a Quality, as too powerfully to corrugate the Fibres of the Stomach and Intestines.

Many Patients have been greatly relieved by taking a Scruple of the Powder of Pomgranate-Bark. The Juice extracted from the Seeds and Bark of this Fruit is also excellent for stopping Diarrhoeas.

Those who have a too copious and a too highly exalted Bile, may eat Verjuice and drink the Juice extracted from it. It is to be laid on Bread after bruising with a little Salt. 'Tis sometimes proper to add Nutmeg and Cinnamon to it. Or we may bruise Verjuice and Garlick,

and put the Juice on Slices of toasted Bread, with some proper Aromatics. 'Tis also frequently proper to add Oil to it. Verjuice may be gathered in the Vineyards adjacent to Camps, or the Juice of it may be evaporated till it acquires the Consistence of an Extract, which may be kept a long time, and is easily transported.

CHAP. IV.

The Means of preventing Petechial Fevers.

Naturalists and Virtuosi are sufficiently acquainted with the Lake of *Agnano*, its Extent, the Monuments of the ancient *Romans* adjacent to it, its Proximity to *Puzzoli*, the Baths with which the whole Country abounds, the Fires it emits, and the sulphureous Exhalations perceived there. On the Brink of this Lake is a Cave call'd *La Grotta degli Cani*, the Dogs Cave, in which all Animals die in a short Time. This Country at certain Seasons is very unwholsome, and the *Neapolitans* who go to it in the Months of *September*, *October* or *November*, either to gather Fruit or divert themselves at their Country-Seats, are often seiz'd with Dis-

Disorders. In the Years 1664 and 1665, this Country was very unwholsome; for all those who pass'd the Autumn there were seized with malignant Fevers, which were accompanied with Eruptions or Spots on the Skin, and which communicated themselves to the Persons of the House, and all those who came near the Patients.

On this Occasion a great Dispute arose; for some asserted that the Lint put into the Lake to steep had produced these Fevers. However 'tis certain that Lint is constantly steep'd in this Lake, tho' like Disorders do not rage every Year. Besides, some Persons were seized with these Fevers in Places two or three Miles distant from the Lake.

Physicians also differ'd as much with respect to the Remedies as to the Cause of the Disorder; but I shall content my self with relating the Sentiment of *Capucci*.

This Physician then asserted, that these Fevers were analogous to those which rage in Camps, especially in *Hungary*, where they are more or less frequent, and in certain Years more or less dangerous for the Soldier. He also asserted, that all Physicians who had wrote on the Diseases peculiar to *Hungary*, greatly extoll'd

toll'd the red or *Hungarian Powder**, or the *Alexipharmic Powder*, which may be prepar'd in the following manner.

The Hungarian Powder.

Take three Ounces of *Armenian Bole*, triturated with the Waters of Roses and Sorrel; three Ounces of seal'd Lemnian Earth prepar'd; half an Ounce of red Coral prepar'd; six Drams of white Coral prepar'd; of prepar'd Emerald, Ruby, Sapphire, and Hyacinth, each four Drams; five Drams of prepar'd Pearls; two Drams of the best Cinnamon; of Citron Bark and white Sanders, each one Dram and an half; five Drams of prepar'd Putty; three Drams of the Shavings of Ivory; one Dram of oriental Saffron; four Drams of Harts-horn philosophically prepar'd, and seven Leaves of Gold: Reduce all to a Powder.

This Powder may be taken to the Quantity of a Dram, a Dram and an half, or two Drams,
in

* This is call'd the *Hungarian Powder*, because it was first employ'd in that Country; 'tis frequently used in *Germany* and other northern Countries, but rarely in ours.

in the Waters of *Carduus Benedictus*, Borrage, Sorrel, or in Lemon Juice.

The Alexipharmic Powder.

Take Tormentil Root, Seeds of Sorrel, white wild Succory, Coriander and Citron, each a Dram and an half ; of the three Sanders and white Dittany Root, each one Dram ; of prepared *Armenian* Bole and seal'd Earth, each two Drams ; of fine Pearls, the two Species of Coral, white Amber, Raspings of Ivory, Putty or calcin'd Ivory, Bone of a Stag's Heart, of the two Beens*, Root of Doronica, Cardamoms, Cinnamon, Mace, Aloes-wood, *Cassia-Lignea*, Saffron, and Zedoary-Root, each half a Dram ; of Sugar-candy or Barley-Sugar, Crude Soot dried at the Fire and reduced to Powder, Emerald, Jacinth, and Granat, each two Scruples ; of the Leaves of Nenuphar, Bugloss and Roses, each one Scruple : Mix all together and reduce to a Powder, adding of Camphire, Musk, and Amber, each three Grains.

About

* Been, or Behen, are Roots brought dry from *Mount Libanus*, and other Parts of *Syria*.

About a Dram of it may be taken in some proper Water or Conserve.

Capucci asserted, that tho' these Medicines, as well as some others greatly celebrated, are very useful, and produce happy Effects in malignant petechial Fevers, yet we ought no more to commend those who made a Mixture of so many different Drugs, than we ought to extol *Andromachus* and *Damocrates*, who have left us the Compositions of the *Theriaca* and *Mithridate*, tho' these Remedies are of great Use in most Diseases. He maintain'd that these Powders, as well as many others, had only been employ'd to flatter some great Man, or to reap the greater Gain and Profit: That the same held true with respect to Pearls so much used in Medicine, and for the Ornament of Women, without knowing why: That Medicine is subject to Modes and Fashions, and that formerly many Medicines were used which are not so much as remember'd, whereas many are at present used to which the Ancients were entirely Strangers.

He thought that the Inventors of these Remedies did not deserve great Encomiums, because they are of great Use in malignant Fevers and many other Disorders; since a Part of these Compositions is ill made, and their good Effects, like those of other Remedies, depend on the
Method

Method of applying them. He added, that there was no more Virtue in Pearls than in common Mother of Pearl, which is cheap, and perhaps less than in the Claws and Eyes of Crabs, calcin'd Bones, Harts-horn, Ivory, and other similar Substances. He said, he could not comprehend why in Remedies we more frequently employ'd precious Stones, than the Seeds of Rosemary and Bay-Berries, which are far more efficacious in the Cure of most Disorders. It is a Piece of unaccountable Folly to believe, that the dearest Medicines are the best, since 'tis frequently quite the Reverse. The precious Stones are added to the Powders we have mention'd, with no other View but to raise their Price and enrich those who sell them. He also asserted, that if we retrench'd the precious Stones from the Preparations above mentioned, they would lose none of their Efficacy; and that if we added in their stead the same Quantity of Cinnamon, Citron-Bark, and Sanders, the Remedy would not only be better, but might also be sold at an easier Rate; that the mentioning the two Species of Coral and Amber was only to impose on the Credulity of the Ignorant; that the Coral and Ambergrise were used rather because they were more rare than efficacious. He also asserted, that some of the Drugs of which these Powders are composed, would furnish us with excellent Remedies for the Cure of malignant Fevers, and a great many other Disorders.

orders. In a word, he related many Instances to support his Opinion, and made the Detail of the Remedies which might be prepar'd of these Drugs, almost in the following manner.

If we take three Grains of the Saffron of *Calabria* or *Utrecht*, and, after drying it, reduce it to a Powder to be taken in warm Broth, it is an excellent Remedy for preventing malignant Fevers. We may also put Saffron in most of our Aliments; and in some Countries they put Saffron into their Bread at particular Seasons of the Year.

A Scruple of white Dittany reduced to Powder, and taken in Broth, Wine, or warm Water, is an excellent Remedy against many Disorders. Wine, in which this Powder is infused, is good, both internally and externally, against Wounds and Ulcers, which it cures with Expedition and Safety. We may also put this Powder, or that of *Origanum* into our Aliments. The Leaves of Dittany chew'd, corroborate the Body and prevent various Diseases.

We may also reduce to a Powder Cinnamon, Cloves, Nutmeg, and Cardamoms. This Preparation is not only salutary when taken by itself, but also serves to render Aliments more agreeable and wholesome. Thus, for Instance, take of Cinnamon and Cardamoms each four Pugils; of Cloves one Pugil; of Mace or Nutmeg

meg two Pugils : Mix for Use. If you incline, you may add four Pugils of Ginger and black Pepper : for tho' these two Drugs are not in the *Hungarian* and *Alexipharmic* Powders, yet they are in the Powder of Pearls, directed by *Avicenna* *.

Citron and Orange Peels may be kept a long time, and if we chew a little of them frequently, the Body will be gradually strengthened and Health rendered better. We may also use them in any other manner we incline. The Seeds of these Fruits are also excellent when chew'd and swallow'd, either alone or mix'd with other Cordials. We may also chew the Roots of Tormentil and Zedoary, or use the Powder of those Roots in Syrups, Conserves, or Liquors of any kind.

Camphire is a Medicine of great Efficacy, both for the Prevention and Cure of Petechial Fevers. The Soldier may therefore chew one or two Grains of it, three or four times a Week, unless there is a Necessity for taking a larger Quantity of it. He may also mix Camphire
with

* *Diamargaritum* is a cordial and corroborating Powder, of which prepared Pearls are the Basis. The Dose is from half a Scruple to two Scruples.

with some other proper Medicine. Thus, for Instance,

Take of the Powders of the Leaves of *Cretan* Dittany and yellow Sanders, each a Scruple and an half; of Camphire two Grains; and of Conserve of Roses or Borage, a sufficient Quantity to form a Bolus of a due Consistence.

Or,

Take of the Root of Zedoary, reduced to Powder, one Scruple; five Citron Kernels; and of Camphire, one Grain; Mix all together, for a Medicine to be used as Occasion requires.

The Smoke of yellow Amber respir'd is of great Service; and tho' the Virtues of this Medicine are not so considerable as those of Camphire, yet by Distillation we may extract an Oil from it, which is very salutary when the external Parts of the Nostrils are rub'd with it, or when a proper Quantity of it is taken in Broth, Wine, or any other Substance.

Powder of Sanders alone will produce very happy Effects; or it may be mix'd with other Medicines. But as there are three Species of Sanders, that of the yellow kind is to be used in Petechial Fevers.

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We have in the seventh Chapter of the second Part observed, that the Water of Sanders prepar'd by Infusion, was useful in many Diseases; and this Water, when Petechial Fevers are dreaded, is to be used now and then.

Capucci asserted, that some of the Ingredients of the *Hungarian* and *Alexipharmic* Powders, such as Pearls, *Armenian* Bole, seal'd Earth and Putty (in whose Places we have substituted burnt Ivory, the Bone of a Stag's Heart, Harts-horn philosophically prepar'd, and Corals) were not well suited to Saffron, Nutmeg, Cloves, Cardamoms, Dittany and Sanders, and that consequently this Mixture was not proper for every body. For this Reason if these Medicines are thought good for any thing, they may be ordered in a more simple Form. Thus, for Instance, we may use the Powder of Harts-horn in order to prevent malignant Fevers, especially if the Body is too soluble. The Dose is half a Dram, to be taken twice or thrice.

Capucci gave the same Directions with respect to calcin'd Ivory, Coral, seal'd Earth, and Mother of Pearl. However, any Person that intends to take a Mixture of all these Ingredients, may take two Scruples or a Dram of them for a Dose, several times a Week.

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These Observations, which are certain, ought to give Courage to Soldiers and poor People, and prevent their envying the rich and opulent Part of Mankind, who have the most costly, but not the most efficacious Remedies, prescribed for them.

If then the Soldier inclines to follow the Advice of *Capucci*, he will exactly follow the general Means indicated in the first Part in order to preserve his Health, and use the simple Remedies which enter the *Hungarian* or *Alexipharmic* Powders: Or he may mix the Aromatics which have the greatest Analogy with each other, and make frequent use of them. He is also to use the Powders of Mother of Pearl, calcin'd Ivory or Harts-horn, Coral, and other Substances of a similar Nature, especially if his Body is too soluble, or if his Humours are of an acid Quality; or he may mix several of these Medicines together, and use them now and then.

If all these Medicines can be incorporated without precious Stones, a due Mixture of them may be made, and the Soldier by using them will find that Princes have not always the best Medicines.

If any one has a mind to use these Medicines with the Addition of precious Stones, he may do so, provided they can be had.

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The Powder of *Savoy*, the Emperor's red Powder, the temperate Powder of Coral, the cold Powder of precious Stones, the Emperor's Powder of Jacinth, and Troches prepared of these, are also excellent Medicines in a great many Diseases.

Neither ought we to despise a Variety of other Preparations in Form of Electuaries, Syrups, Waters, and other Forms daily prescribed by Physicians.

I must however advertise the Soldier, not to depend too much on precious Stones ; for this Remedy, dear as it is, will not cure the Itch, which may be effectually removed by a little Brimstone, which is very cheap. But without insisting longer on these Things, I return to consider the most simple, and at the same time the most efficacious Remedies.

The Physicians of *Auxburg* often prescribe compound Flowers of Sulphur, on account of their Efficacy and Simplicity. Thus :

Take two Ounces of the Flowers of Sulphur ; of Hepatic-Aloes and the best Myrrh, each one Ounce ; and of Saffron one Ounce : Reduce all to a Powder, of which one Scruple is to be taken at a proper Time.

This

This Powder of *Auxburg* brings to my Remembrance the Tinctures extracted from Aloes, Myrrh, and Saffron, of which I have spoken in *Part III. Chap. 3.* and which are of great Efficacy to prevent Petechial Fevers, and cure a great many other Disorders. I have also in *Part IV. Chap. 1.* taught the Method of extracting a Liquor from these Substances by Distillation.

This Remedy, with respect to its Virtues, resembles *Van Helmont's Elixir Proprietatis*, which requires a long Digestion, which however augments its Efficacy. — He with this Medicine mixes Cinnamon Water, which greatly increases its Virtues. Of these three Ingredients we may also make Pills, which are excellent for preventing Petechial Fevers. Thus :

Take of Myrrh, one Ounce ; of hepatic Aloes, two Drams ; and of Saffron, one Dram : Mix up with a Quantity of Wine sufficient to form into Pills of the Bulk of an ordinary Pea ; to be taken every two, three, or four Days, as Occasion requires.

As in distilling the *Elixir Proprietatis*, every Part of the Materials does not ascend, so by reducing what remains in the Mattraß to a Powder, and dissolving it in Wine, we may obtain a large number of Pills, which produce the same Effect

Effect, and which may be sold at a very low Rate.

The Soldier may also use Myrrh, and the Flowers of Sulphur, without mixing them with any other Thing. I have seen Flowers of Sulphur form'd by Nature, so that there was no Necessity for Art in preparing them. I shall here repeat what I have said of Brimstone in *Part III. Chap. 3.* namely, that it is expedient now and then to respire the Smoke of it.

Ancient and modern Physicians greatly extol Raspberries, of which there are large Quantities in *Germany*. But tho' these do not appear to be possessed of so great Virtues as is generally pretended, yet I do not condemn the use of them, since they are a sweet agreeable Fruit, and approach pretty much to the Nature of Strawberries.

The Root of Contrayerva is also very efficacious, and produces happy Effects when chew'd and swallow'd, as I have observed in speaking of the Roots of Tormentil and Zedoary.

There are many of the Substances we have mention'd, from which we may prepare Waters in the Method elsewhere directed.

Garlick also, used in whatever Shape, is very good. The whole Heads with their Skins, boil'd in Broth or Water, excite a Discharge of Sweat, and facilitate Transpiration. This Preparation is also excellent for various other Purposes.

We ought not however to condemn those who use proper Quantities of the Theriaca and of Mithridate, twice or thrice a Week.

Some Persons are refreshed and invigorated by the Smell of Vinegar alone, a few Drops of which facilitate Perspiration. The Theriacal Vinegar is much esteem'd against petechial and malignant Fevers, and some extol it as an excellent Preservative against the Plague. There are various Methods of preparing it.

The Compilers of the *Pharmacopœia* of *Auxburg* give the Composition of a Theriacal Vinegar, which may be used both internally and externally. But if a Person wants a Vinegar for his own Use, he may infuse in two Pints of strong Vinegar, half an Ounce of the Seeds of Rue; of Orange and Citron Peel, Cinnamon, Cloves and Contrayerva Root, each an Ounce.

In a Word, as it would be impossible to use all these Remedies, and as some are better than others,

others, they are not to be used promiscuously and indifferently, but three or four of the best are to be chosen in order to preserve Health. On such Occasions a Person's own Judgment and Experience are to be used, or a skilful Physician is to be consulted. I should for my own use prefer Camphire, Dittany of *Crete*, and the Powders we have specified, in order to season the Aliments; and the Medicines prepared of Saffron, Myrrh, and Aloes.

CH A P. V.

The Means of preventing Quartan Fevers.

THE best of *Galen's* Writings on Medicinal Subjects, is that entitled *The Art of Curing*, dedicated to *Glaucon* a Roman Philosopher, and a Man of Consular Dignity. *Galen*, in that Work, directs the Method of curing quartan Fevers, and among various other Medicines there specified, he asserts, that the *Dialvion Pipereon*, and the Water in which Pepper, Treacle, Mustard, and some other Substances are infused, are excellent for Patients labouring under quartan Fevers. The *Diatrion Pipereon* is composed of four Drams and fifteen Grains of the three Species of Pepper, and of Anise, Thyme and Ginger, each one Dram.

Tho' these Remedies are equally good for the Cure of quartan Fevers, yet the Soldier ought not to forget what we have advanced in the first Chapter, relating to the general Remedies subservient to the Preservation of Health.

If we do not incline previously to mix these Substances together, because they easily lose their Virtue when reduced to a Powder, except they are kept in a close-stopt Bottle, we may carry about us some entire Pepper Corns, and some Races of Ginger, to be used occasionally.

We may swallow twenty or thirty Grains of Pepper in a Morning for stopping Fluxes: We may also take as much after Dinner. The same Quantity of Pepper taken four or five times a Week, is an excellent Remedy against sour Eructations.

A small Quantity of Ginger taken in any Form, is of great Use. It may be kept in the Mouth and chew'd till it becomes soft, and the Saliva is to be swallow'd. This Root not only prevents quartan Fevers, but also fixes the Gums.

In *Italy*, *Germany*, and other Countries, Mustard Seeds are prepared in different manners. Some mix them with sweet boil'd Wine to the

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Consistence of an Electuary, which facilitates Digestion, procures an Appetite, and prevents tertian and quartan Fevers.

Some Bay-berries swallow'd are of great Efficacy for preserving the Intestines from various Disorders. The same Intention is also answer'd by Myrrh and various other Medicines.

C H A P. VI.

The Means of preventing a Tertian, and various other Fevers.

ANcient and modern Physicians have distinguish'd Fevers according to the different Times of their Returns, into Tertians, Quartans, and Quotidians, and have endeavour'd to accommodate their Observations upon these, to the Hypothesis of the four Elements and the four Humours. They have also ordered different Remedies for their Cure, as if they proceeded from different Causes returning sooner or later, and consequently demanded a different Method of Cure.

Some Physicians assert, that this Opinion is incumber'd with great Difficulties, and ask why

its Abettors have not invented a fifth Humour, for the sake of the Fever which returns on the fifth Day, a sixth for that which returns on the sixth, and a seventh for that which returns on the seventh Day?

Others have observed, that a great many Fevers, tho' different with respect to the Returns of their Paroxysms, were yet cured by the same Means; whilst others, highly similar with respect to the Returns of their Paroxysms, could not be cured by the same Remedies.

'Tis not therefore to be imagin'd, that because the Paroxysms of Fevers, and various other Disorders, return at the same Time, they are therefore of the same Nature, nor that they are different as to their Essence, because they return at different Times. Since it does not follow, that Fruits must have contrary Qualities and Virtues, because they do not become ripe in the same Month of the Year, nor that such Fruits as are ripe at the same time, must produce the same Effects in the Body. Thus we frequently observe on the same Tree, Figs which are ripe in the Month of *May*, and others in the Month of *August*, which however are the same with respect to Colour, Taste, Smell, and the Effects they produce. But this does not happen in all Fig-Trees. The same Oak, on the contrary, produces different sorts of Fruits, which become

ripe at different Times, and are different in Colour, Smell, Taste, Figure and Virtues.

The same Thing which happens in Oaks is also observed to happen in some Species of Plumb-Trees. It also happens that Diseases appear the same in certain Patients, tho' they differ in most essential Points; and often tho' they are the same as to their Essence, they are more or less troublesome, and demand a different Cure according to the Difference of the Part affected. Thus, for Instance, there is a great Difference between the Inflammation and Suppuration of a Gland in the Groin, and the like Symptoms in a Gland of the Mesentery or Breast.

There is no Necessity for entering into a larger Detail: But in order to confirm what I have advanced in the first Chapter of this Part, namely, that it is easier to prevent than cure Diseases, I shall only here observe, that tho' Tumors of the Glands often require different Remedies, according to the Parts affected, yet the same Remedies have all the same Virtue and Efficacy to prevent their Inflammation; so that we cannot be so easily deceived in the Choice of Preservatives, as in that of proper Remedies, used for the Cure of a Tumor, already form'd in the Mesentery, the Breast, or the Brain.

I believe the same holds true with respect to all Fevers which have regular or irregular Periods, and which begin with a Shivering and some other Symptoms, tho' their Paroxysms happen at different Times ; and I'm persuaded that they may be prevented by the same Medicines, and the use of the same Method. If therefore any Physician should assert, that there is not a certain Method of preventing a tertian Fever, I advise the Soldier not to listen to him, since 'tis far more difficult to cure than prevent a Disease of any kind.

The Remedies most proper for preventing Fevers in Soldiers, are those call'd *Febrifuges* ; tho' the most strong and drastic of these ought not to be used by every body. I shall not here enumerate those specified in the preceding Chapter, but shall add some others which may be easily found every where, and which may be used by every body. These Remedies then are,

Wormwood, which I have frequently mention'd, on account of its usefulness. This Plant, when held in the Hands, or applied to the Region of the Stomach, not only prevents, but also removes a great many kinds of Fevers. The Smell of Wormwood produces the same Effect, as I have often experienced.

Galen

Galen often orders Wormwood for Fevers; and in legitimate Tertians, after the Disorder appears plainly, he orders the Patient every Day to swallow one or two Leaves of it. He pretends, that this is also an excellent Remedy against Pains of the Stomach produced by the Bile. The Region of the Stomach may be also anointed with Oil of Wormwood by Infusion. An Oil by Distillation is also obtain'd from this Plant, of which a Wine and a Salt are also prepared. Southernwood may be employ'd for the same Purposes.

Rue, Sage, Rosemary, Mother of Thyme, Penny-Royal, Calamint, and many other Plants found in the Fields, especially Dittany of *Crete*, Baum, and Juniper Berries chew'd and swallow'd, also prevent Fevers. The Smell of Feverfew alone, as also that of Sage, Mother of Thyme, Penny-royal, and Calamint, produces the same Effect. We ought therefore to confide more in these Medicines, in Conjunction with a proper Regimen, than in Purgatives and the different Methods of Blood-letting.

C H A P. VII.

The Means of preventing the Jaundice.

IN Camps many Persons are subject to the Jaundice ; for the Prevention of which, besides the general Remedies before indicated, it is proper now and then to hold down the Head, and if possible excite a Vomiting, by thrusting the Fingers or a Feather into the Throat, which is of Service even when a Vomiting is not produced : for the Effort always produces some Motion in the Liver and Gall-Bladder ; and if a Vomiting is excited, the Patient evacuates pure Bile. It is also expedient, often to eat Succory and drink Water of Dogs-Grass. All the Remedies which correct and dilute the Bile, are also proper ; and among these Southernwood, Wormwood, and the greater Centaury are most esteem'd. Rhubarb is also accounted good, not only because it evacuates, but also because it purges the Bile. If a Dram of it is chew'd, and the Saliva swallow'd, it prevents the Jaundice. For the same Purpose a Scruple of Rhubarb reduced to Powder is to be thrown into a Pint of the Waters of Succory or Dogs-Grass, which are to be used at Meals and
when

when the Patient is dry. Some of these Waters may also be used with Wine. The Jaundice is also prevented by dissolving in four Ounces of warm Milk, a Scruple of *Venice* Soap, and half an Ounce of Sugar ; which Preparation is to be taken once a Month fasting. Wine, Vinegar, and Tincture of Steel, are also highly efficacious against this Disorder. Ivy Berries swallow'd, have also the same Virtue. Powders of Earth-Worms, Wood-Lice, and various other Medicines are prescribed for the same Purpose.

C H A P. VIII.

The Means of preserving the Appetite and facilitating Digestion.

SOME Persons may perhaps laugh at the Title of this Chapter, because their Appetite has never fail'd them, and they have never been afflicted with Indigestions in the Army, whereas they have often wanted Bread when their Appetite was good. But the very Reverse of this happens to others, who in Consequence of a Redundance of Aliments and Drinks, or the bad Quality of them, or the Weakness of the Stomach, and Liquors subservient to Digestion, are afflicted with Nauseas and a bad Digestion.

All Preparations of Mustard, of which we have spoken in the Chapter concerning Quartan Fevers, are proper for Patients of this kind.

Water-Cresses are also excellent for facilitating Digestion. There are also at *Vienna*, and many other Places of *Germany*, a great many of the Roots which the Inhabitants call *Green*, and which are very good to quicken the Appetite and facilitate the Digestion of the most crude Aliments. Some are of Opinion, that these are the same with the Roots of the wild Radish, at least it appears by the Description which *Matthiolus* gives of this Plant, that it resembles the *Green* of *Germany*. But if the Roots sold at *Vienna* under the Name *Green*, are those of the wild Radish, 'tis certain that the Radish in the Neighbourhood of *Rome*, is different from that of *Germany*, which is of a more sharp and pungent Taste. The Roots of the Radish at *Rome* are short, whereas those of the *Green* in *Germany* are considerably long. Besides, the Pungency of the *German Green* in some measure resembles that found in some Species of Cresses; a particular kind of which is by *Muller* classed among the wild Radishes. All these Roots lose a great deal of their Strength and Virtue by being boil'd.

They are to be used either when fresh or dried in the Shade. They are to be cut into
small

small Slices, and eaten either with Fleashes or Bread. The Roots of *Green* are also of great Service to Soldiers who have bad Bread. At the Time we use those Roots, we may also eat a Piece of Bread soaked in strong Vinegar. These Roots prevent the Scurvy, and all Diseases which either resemble it or arise from the same Causes. They also cure Tertian and Quartan Fevers. We may here add curled Baum, and *Roman* Mint, which are excellent for preserving the Appetite and facilitating Digestion.

C H A P. IX.

*The Means of preventing Inflations of the Abdomen,
and Obstructions of the Intestines.*

IT rarely happens that a Soldier who avoids Excess of every kind, and observes the Directions laid down in the first Chapter of this Part, is afflicted with Inflations of the Abdomen and Obstructions of the Intestines, especially if he takes Care not to drink unwholesome Water. These Disorders are also prevented by drinking frequently each Week a proper Quantity of Sassafras Water, or common Water with some Drops of *Aquavitæ* in it. The same Intention is also answer'd by the frequent Use of Garden

or wild Radish, Cresses, the Roots call'd *Green*, Wormwood, and the Wine in which a Piece of Iron or Steel has been infused.

CH A P. X.

The Means of preventing a Cough.

THE Soldier is frequently afflicted with a Cough, because he feeds upon crude and cold Aliments, or is often forced to go from hot to cold, and from cold to hot Places. The Soldier then who inclines to be free from this Disorder, ought not only to advert to what we have said, and use the general Remedies specified in the first Chapter, but also frequently to chew or swallow a few Grains of Incence, which may be also reduced to a Powder and taken in a poach'd Egg; in which manner he may also use Powder of Mastich; or he may swallow a Pill composed of Turpentine, Sugar, and the Roots of Orris and Liquorice reduced to a Powder. An equal Quantity of Honey, Sugar, and fresh Butter, boil'd over a slow Fire, and frequently stirred, is an excellent Remedy for preventing and curing the Cough, if taken frequently. The Soldier may also, for the same Purpose, chew some small Pieces of the Roots of the Alder-tree;

tree, and use Ptisans of Liquorice and Raisins, or Infusions of the Roots of Alder. Marjoram, Hyssop, and Colts-foot, boil'd with Butter and Eggs, are also excellent for the same Purpose.

CH A P. XI.

The Means of preventing Head-achs.

THE Soldier who uses the general Remedies indicated in the first Chapter of this Part, who takes care to keep his Head clean, and facilitate the Transpiration of it by gentle Frictions, and who takes care frequently to smell dry Sage, Penny-royal, Marjoram, and Calamint, will not readily be subject to an Head-ach; which is also prevented by putting into the Nostrils Leaves of Sage, Betony and Marjoram, and respiring thro' these Leaves. Head-achs are also prevented by smelling Camphire and eating a Grain or two of it; by rubbing his Face and Head with Spirit of Wine, in which the Leaves of Rosemary have been infused, and by respiring the Air thro' his Hands after they have been moisten'd with this Liquor.

C H A P. XII.

The Means of preventing Pains of the Joints.

MANY of the Soldiers who return'd from the Camp of *Buda*, complain'd of wandering Pains of their Joints, without the Appearance of any Tumor.

Soldiers then, in order to prevent these, ought to abstain from Acids and such Substances as easily become acid ; and if they cannot totally abstain from such Substances, they ought to use as little of them as possible. They ought also frequently to use such Medicines as absorb Acids, such as Crabs Eyes and Claws, Harts-horn, and other similar Substances reduced to Powder. Spirituous Medicines, oleous Aromatics, Mother of Thyme, Calamint, Cinnamon and Nutmeg, are also very proper for them. If they have been accusom'd to Wine they may use it moderately, provided they abstain from such Wines as easily become acid in the Stomach ; or they may drink Beer. If they have not been accusom'd to Wine, they may use Pine-Water, that of the Mastich-Tree, or that prepar'd by infusing Pine-Seeds in Water. They may also swallow the
Seeds

Seeds of the Mastich and Quince Trees, and eat wild and Garden Radish with their Bread. Chervil and Parsley are also very proper for them. They ought also to put upon the Places which appear to be threaten'd with these Pains, Compresses dipt in *Aquavitæ*, in which the Seeds of the Mastich-tree, or Bay-Berries, have been infused for some Time. Those who are already afflicted with these Disorders, ought carefully to maintain the Warmth of the Part affected by means of a Woolen Cloth, of sufficient Thickness; and if a little Turpentine or Tar be spread on this Cloth, it will prove still the more efficacious. I insist no more upon these, because too great a Quantity of Drugs and Medicines would be hurtful, instead of proving beneficial.

C H A P. XIII.

Of the Disorders of the Mouth and Tongue.

WE often perceive the Signs of an approaching Disorder, in the Mouth and Tongue. Some have the Mouth and Tongue too dry, tho' their Colour is laudable; others have a kind of slimy viscid Matter in their Mouth, and their Saliva is too thick; others have their Tongues rough and furrow'd like those of Cats: Some have their Tongues of whitish,

whitish, and others of a yellowish Colour ; whilst others have their Throat and Tongue cover'd with a black Crust like Soot : Some also spit more copiously and frequently than they ought, and these are generally seized with tertian, quartan, or other intermittent Fevers.

If Persons in any of these Situations are not at great Pains for the Preservation of their Health, they will be seized with dangerous Diseases. They ought therefore carefully to examine what Errors they have committed in Regimen, and enquire into the Nature of the Disorder. If they have drank unwholesome Water, or used improper Aliments ; if they have been exposed to Fogs or Damps ; if they have had too great a Solubility of Body, or if they have lost their Appetite, all these Misfortunes may be removed by the Means we have before specified.

Those whose Tongues are too dry, and who spit less than they used to do, may twice or thrice a Week take three or four Grains of Crystal Mineral, moving the Tongue from side to side, and swallowing the Spittle ; or half a Dram of this Salt may be put into a Quart of Water to be drank at different Times. We may also mix the same Quantity of mineral Crystal with Syrup of Mulberries, or Raspberries, to be used frequently. Sal Ammoniac is also proper for the same Purpose.

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They may also put a little Alum into their Mouth, in order to excite a Discharge of the Saliva, and reduce the Glands of the Mouth to a laudable State. They ought also to wash their Mouths often with Water and Wine; and those who perceive a Bitterness in their Mouths, ought to wash them with Vinegar, which at the same time is a proper Means of restoring the Mouth and Throat. For the same Purpose they may also use Water mixed with *Aquavitæ*, Wine, or Beer.

They ought also to eat green Nuts, boil'd in Water in their Shells, and prepar'd with Honey or Sugar. In a Word, when the Saliva is too thick, we ought to dread Obstructions and Inflammations in some Part or other of the Body. Various other Species of Abscesses may also be prevented by the Use of Nuts prepared in the manner above directed.

In the Shops of the Apothecaries there are Robs of Nuts and Elder, which cure many Disorders of the Mouth, and attenuate the Saliva. The fresh Flowers of Elder mix'd with Bread are also very good for the same Purpose.

Those who have too copious and thin a Saliva, ought to drink less frequently, to use Aromatics, and sometimes swallow Peppercorns, as we have observed when treating of a Quartan Fever.

The



The most easy as well as efficacious

M E T H O D
O F
P R E S E R V I N G the H E A L T H
O F
S O L D I E R S in C A M P S.

*Translated from the Latin of FREDERIC HOFF-
MAN, Professor of Physick at Hall in Saxony,
and Physician to the late and present King of
Prussia.*

S E C T. I.



IN treating of the Method of preserving the Health of Soldiers in Camps, there seems to be no great Necessity for a Definition of Terms, since every one knows not only what a Camp, but also what a perfect State of Health implies; for instead of describing Things, it will be of far greater

greater Service and Importance, to describe the various Circumstances and Emergencies accompanying a military Life, that the Reader may by this means know what is principally to be adverted to in forming a right Estimate of the proper Measures to be taken. In order however to prevent all kind of Obscurity, *A Soldier is a Man bound by an Oath to his Prince, to undergo all the Toils and Hardships of War whenever he is commanded so to do, even when exposed to the most manifest Danger of losing his Life.* So that a Person placed in a military Capacity, is by no means at his own Disposal, and consequently on certain Occasions, can neither live commodiously nor withdraw himself from the various Injuries of the Seasons, and the other Casualties which have a Tendency to impair Health and destroy the Soundness of the Constitution; for a Soldier has not generally Choice of Foods and Liquors, but is obliged to live according to the various Circumstances of different Times and Places. Sometimes indeed he is blessed with an happy Assistance of the best of Aliments, but far more frequently reduced to a Necessity of sustaining the ungrateful Shocks of Hunger and Thirst. Stated Times of Meals, the Enjoyment of usual Aliments, and the frequent Use of Delicacies, are so incompatible with a military Life, that the young Soldier ought to make it his greatest Care to habituate himself to the Want of them. To indulge Sleep at a stated Time of the Day, to lie down on a soft and well-made Bed at Night,

Night, and rise out of it at certain fix'd and determin'd Hours, or to live in close and warm Rooms, are Pieces of Effeminacy by no means suited to the hardy and warlike Condition of a Soldier, who ought to watch whilst others sleep, and sleep when he catches the most favourable Opportunities. Neither can the Soldier, in Imitation of some Men at their own Disposal, indulge himself in an Excretion of Sweat in the Morning, by exciting a brisk Circulation of his Blood by means of warm Infusions, which some think so absolutely necessary to the Preservation of Health. The Man placed in a military Capacity cannot possibly restrict the Times of his Venesections to certain Phases and Appearances of the Moon; neither can he, especially if he is a Commander, guard against the dire Effects of Passion and Anger; since Officers of the highest Stations, daily meet with Accidents and Occurrences which cannot fail to ruffle their Tempers and discompose their Minds; not to mention the Sollicitude and Cares they have to discover the Counsels of the Enemy, guard against their Stratagems, and secure to themselves the Glory of Conquest.

S E C T. II.

By *Camps* we mean those Plains or Tracts of Ground, assign'd by Generals, either for whole Armies, in order to wait for the most commodious Time of Action, or of opposing the Measures

tures of the Enemy ; or for certain Bodies or Detachments from the main Army, in order to intercept the Passage of the Enemy, or to be in Readiness and at hand when they are call'd, as a necessary Reinforcement. In such Places, Soldiers live either under the open Air or in Tents, which prove but bad Defences either against the scorching Heat or pinching Cold. Besides, tho' they should have an Opportunity of being sufficiently, or perhaps sometimes too much, exposed to the Wind, yet it must necessarily happen, that in so great a Multitude of Men and Animals, the Air must be fill'd with various Effluvia, and a large Quantity of Sordes gradually accumulated, especially when no Winds blow, when a dry and hot State of the Air continues long, when the Situations of the Places exclude the Winds so necessary to purify the Atmosphere, or when noxious Exhalations are copiously convey'd to the Camp from adjacent marshy Places. Soldiers indeed lodged in Castles and Garrisons, seem in these Respects to be happier than such as are encamp'd ; but even the former suffer an uncommon Degree of Hardships and Calamities, when they are besieged, especially since Fortifications and Places of Defence are never chosen with a View to the Salubrity of the Air, but always on account of their Fitness for the Purposes either of Defence or Havock.

S E C T. III.

Tho' the Meaning of the Words *Perfect Health* is easily understood, yet 'tis the indispensable Duty of the Camp Physician, to correct Health when depraved, support it when languid, and restore it when lost. But as 'tis hardly possible, that in a numerous Army, Things should be managed in such a manner, that the latent Causes of Diseases should not be lodged in many of the Men, we must enquire in what Causes Diseases generally derive their Origins, that these Causes being known and avoided, or if not possible to be avoided, seasonably and duly corrected, or beginning Diseases may be suppressed and Health recall'd.

S E C T. IV.

We must therefore consider the six Non-naturals, in order to discover how much, and what kind of Danger *perfect Health* may sustain from each of them ; after which we shall subjoin the Measures most proper to be taken for preventing this Danger. The excessive Qualities then of the circumambient Air, which the Soldier cannot chuse for himself, greatly injure the Body ; as for Instance, when the Atmosphere is intensely cold, hot, moist, or dry. Thus an excessive Cold, by a strong Stricture and Compression of the Fibres and Vessels, determines the Motion of
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the Humours from the Surface of the Body to the internal Parts, and by hindering a free Circulation of the Blood and Humours thro' the minute Vessels of the external Parts, produces violent and dangerous Infarctions, especially in the weaker Parts, Repletions of the Vessels, and mortal Stagnations of the Humours. Thus if a Person is long exposed to an intense Frost, the Humours are entirely coagulated, and the Parts most immediately affected becoming as it were mortified, must be treated with Care and Judgment, otherwise they are frequently sphacelated and separated from the sound Parts. An intense Cold most powerfully affects Persons travelling Eastward in the Morning, because at that Time an excessively cold and penetrating Wind generally blows from that Quarter ; so that the Soldier, as during the whole Day, so more especially in the Morning, is to take uncommon Care of himself. The same Effects are produced by the North Winds, when Soldiers march against them, or are exposed to them for whole Nights or considerable parts of Nights. Flagrant Instances of the terrible Effects of Cold on Soldiers are given by *Xenophon de Expedit. Cyri*, Lib. iv. and *Henricus Mundus in Oper. Med. Physicor.* where we are told, that in *Scotland*, during a certain Winter Campaign, most of the Soldiers had their Hands and Feet so contracted, that they could hardly march and handle their Arms, whilst others were totally incapacitated for these Purposes.

S E C T. V.

Besides the Hands and the Feet, the Noftrils and Ears are greatly exposed to the Injuries of intense Cold, as we are inform'd by *Ambrose Paré* in Lib. xi. Cap. 2. where we have Instances of the terrible Nature of a *Sphacælus* produced in these, as well as other Parts, by means of Cold; and 'tis certain from Experience, that Cold is surprizingly prejudicial to Persons of plethoric, cachectic, or cacochymic Habits; and to such as are obnoxious to spasmodic Disorders, or have lately recovered from a violent Disease; for it excites cephalagæ's, vertigos, lethargic Disorders, Apoplexies, Palsies, Disorders of the Hearing, Dimness of Sight, Inflammations of the Eyes, Coughs, Pleurifies, moist Asthmas, and many more Calamities.

S E C T. VI.

The Soldier is best fortified and guarded against these Inconveniencies and Misfortunes, by being warmly cloath'd; tho' running, walking quickly, and the Concussion of his Hands, are also of great Service to him. *Schneeburg. in Tract. Sanit. Milit. Conservand.* informs us of the People of a certain Nation, that tho' they live in an intensely cold Country, and are only cover'd with the most slender Garments, yet they have learn'd by Exercise, Running, and the Concussion of their Hands,

Hands, to supply the Places of Houses, Clothes, and Beds. 'Tis sometimes expedient and beneficial to rub the Hands with Snow when beginning to grow stiff, and then to move them frequently. When cold Soldiers come to Houses, they ought by no means suddenly to enter into very warm Parts of them, or expose themselves instantly to Furnaces or Fires. Let them foment the stiff and rigid Parts with Snow or cold Water. Let them walk up and down rather than sit still: And, above all things, let them guard against drinking Brandy or any other spirituous Liquor, before the Humours determin'd to the internal Parts, and detain'd in them, have return'd to the Surface of the Body; because the Humours, when accumulated in the internal Parts, are easily coagulated. 'Tis far safer to drink Malt Liquors; after which, if the March is to be continued, spirituous Liquors may be used, tho' with great Moderation. When the Soldier, in cold Weather, comes to the House where he is to quarter all Night, he must not, in order to gratify himself, make a Fire of Charcoal in a Room without a Fire-vent or Chimney. The more intense the Cold, the more certain the Injury, and the greater Danger of Life is incur'd, as is obvious from the deplorable Fate of *Jovian* the Roman Emperor, who tho' victorious over his Enemies, yet fell a Victim to Cold, as we are told by *Eutropius*, in Lib. x. See *Fred. Hoffman. Medic. System. Tom. 2.*

S E C T. VII.

What has been said is sufficient with respect to a dry Cold; but that of the worst kind, is no less but rather more prejudicial to Health, since it not only equally inspissates the Humours, but also by relaxing the Tone of the Fibres, retards the Circulation of the Humours, diminishes Perspiration, and consequently increases the Impurity of the Juices. But a moist State of the Air is so much the worse, if Winds blowing from marshy Places bring Fogs, Clouds, and Rain along with them. Hence in the Spring and Autumn, various Diseases were observed to rage epidemically. At these Seasons therefore, when the Air is in such a State and Condition, the Soldier is with Diligence to preserve a free and uninterrupted Transpiration: For which Purpose he may use Wine, Geneva, spirituous Medicines, Garlick, Juniper-Berries, and, which is generally most easy to be had, Sulphur and its Flowers: By which, 'tis certain from Experience, that Respiration is preserved and promoted. The Robs of Juniper and Elder may also be used with great Advantage, if they can be had.

S E C T. VIII.

All Cold is more injurious to a fasting hungry Man, than to a Person who has eaten and drank liberally. It were therefore to be wish'd, that
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in cold Weather the Soldier should not go abroad without taking some warm Broth or Infusion; so that if nothing else can be had, he may to one Pint of boiling Water add twenty or thirty Juniper-Berries gently toasted, and a Slice of toasted Bread. This Liquor, after it has boil'd for a little, he is to sip warm, as we do other Infusions. After this a moderate Quantity of spirituous Liquors will not easily prove hurtful to him. By this Means the Humours being render'd sufficiently fluid, will open the constricted Pores of the Skin, thro' which, as well as other Emunctories, the Impurities which would otherwise remain in the Body, will be dissipated and carried off.

S E C T. IX.

'Tis equally certain from Experience, that the human Body is no less injur'd by Heat than by Cold, since from the former many Inconveniences and Hardships arise to Soldiers living in Camps; for an intensely hot Air greatly attenuates and rarifies the Humours, and by enlarging the Diameters of the Pores, augments the insensible Diffipation of the Fluids. By this means the more subtile, which are the best Particles of the Blood, are too copiously eliminated, whilst its gelatinous parts are resolved and dissipated, by which means the Body must necessarily be weaken'd. 'Tis however, upon making a just Estimate, to be confess'd, that most of the

Disorders which generally appear during a hot Season, do not seem so directly to arise from Heat, as from the cold and moist Air of the Nights and Mornings, the Vicissitudes produced by this Means, or an insatiable Thirst, for the assuaging of which Soldiers either drink to Excess, use Liquors of bad Qualities, or devour Summer Fruits often unripe, and oftner cover'd with a noxious Dew.

S E C T. X.

During great Heats therefore, the Soldier ought, if possible, to remain at Rest in his Tent, and march in the Night and Morning. But upon the Road he is carefully to abstain from Wines, spirituous Liquors, and Aromatics, which greatly expand the Humours; and instead of these he is to use Preparations of Nitre, Acids, such as Sorrel and Wood-Sorrel, Lemon-Juice, and even Vinegar, which, according to *Schnebergerus*, was used by the *Roman* Soldiers, as we are told of *Marcus Cato*, who in waging War always drank Water, except when he was excessively dry, at which Time he used Vinegar. But of this we shall afterwards speak, when we come to treat of noxious and salutary Drinks.

S E C T. XI.

A moist Heat greatly resolves the Body, and induces a Languor, because it renders the moving

ing Fibres too lax and flaccid, and excessively augments cutaneous Excretion. But Humidity is so much the more hurtful, when the Moisture brought along with the Air is impure, and impregnated with sulphureous and saline Exhalations; for hence arise epidemical Diseases, which suddenly seize many, and prove highly mortal. These Effluvia are most frequently owing to adjacent putrid Waters, Ponds, and Marshes. The Exhalations also of so many Men and Animals, as are contain'd in large Camps, must necessarily contaminate and pollute the circumambient Air. If to these are added the putrid and fetid Steams and Emanations from Men and Animals, either cut or by Diseases, or in Battle, and either not buried deep enough or totally deprived of Burial, the Calamity must certainly be render'd worse. But nothing is so terrible as when a considerable Number of Men by these means are thrown into malignant Fevers and Dysenteries, and when the specific and exalted Poison is transfer'd from their Bodies to those of the Persons who converse with and attend them, so as to excite a similar malignant and putredinous Corruption, which rages without Controul, especially when to the Malignity of a contaminated Air, various Errors in Regimen are added. But these we shall afterwards consider.

S E C T. XII.

There is not a more certain and infallible Remedy for so great a Calamity, than to change the Camp to a more salubrious and wholesome Tract of Ground. But as this is not always in the Power of the Physician, he is to use other Methods of Relief, or at least to advise and propose them. 'Tis therefore expedient, to correct the Air of Camps, to kindle large Fires, by which the stagnant vapid Atmosphere is put in Motion, and a great Part of its Corruption consum'd. The Air of the Tents is frequently to be purified by the Smoak of Sulphur, and sprinkling them with Vinegar. If Abundance of Juniper Wood can be had, we are to kindle its green Branches with the Berries; by the Smoak of which, the impure Particles of the Air are either dispelled or corrected. The Soldier, on such Occasions, successfully uses whatever preserves and promotes Transpiration, as the Infusion prescrib'd in *Seet. 8.* the Powders of some Alexipharmic Vegetables, as Burnet, Elicampane, Angelica, Galangals, Gentian, and Carduus Benedictus, with a small Quantity of Nitre. But if none of these can be had, let as much of the Flowers of Sulphur as the Point of a Knife can hold, be exhibited with some earthy Absorbent, as the Shells of Eggs, prepared Sea-Shells, and the Eyes and Claws of Crabs. Such Medicines are very beneficially exhibited in the Evening, when

when the Cold succeeding the Heat of the Day begins to constrict the Surface of the Body.

S E C T. XIII.

When the Body is not only surrounded by a moist Air, but also uses Exercise in it, it must sweat often and copiously, and consequently be cover'd with much Filth and Sordes, which not only block up the Pores, but also render the malignant Miasmata, fluctuating in the Air, capable of adhering to the Skin, and consequently insinuating themselves into the whole Body. There are two Methods of preventing this Misfortune, the one frequently to change Linens, and the other to wash the Body often, when Time and Place permit. The Ancients had an uncommon Veneration for this Practice: To this Purpose *Schnebergerus* speaks in the following manner. “According to *Galen* in *Meth. Medend. Lib. x. Cap. 10.* As the Man who
 “travels in an hot Sun, if he does not use the
 “Bath at his Journey's End, is either seiz'd
 “with a Fever or a chronical Pain of the Head;
 “so Soldiers, as being robust and vigorous,
 “ought on such Occasions to plunge themselves
 “in cold Water, by which means they will be
 “greatly relieved; for after a Journey we
 “come to a cold Bath hardly able to speak, on
 “account of a Dryness of the Tongue and
 “Fauces, and having our whole Bodies squalid
 “and dry; but when we come out of the
 “Bath,

“ Bath, we are neither afflicted with a febrile
 “ Heat nor a Dryness of the Skin, but speak
 “ freely, and have our Thirst in a great Mea-
 “ sure alleviated. The Country People also on
 “ such Occasions, without any Advice of a Phy-
 “ sician, throw themselves into Lakes or Ri-
 “ vers by the Instinct of Nature, which also
 “ prompts the brute Creatures to use Things
 “ opposite to their Disorders, since the very
 “ Animals destitute of Reason, when afflicted
 “ with Heat, wash themselves in cold Water.”

S E C T. XIV.

The Persons however, who intend to follow this
 Direction, ought by no means to plunge them-
 selves in the cold Water whilst they are exces-
 sively hot or still sweating; for *Alexander* the
 Great unwarily throwing himself into the *Cid-
 nus*, the most rapid, and consequently coolest
 River of *Cilicia*, by that means exposed himself
 to imminent Danger. 'Tis also to be observed,
 that no Person actually labouring under a Fever,
 ought to enter the cold Bath. Persons who can-
 not swim ought to guard against entering Rivers
 with the Channels of which they are unacquaint-
 ed, lest they should by that means lose their
 Lives. If Soldiers are in the Neighbourhood of
 hot Springs, many of which are found in *Hun-
 gary* and on the *Rhine*, they may with still
 greater Advantage use them by way of Bath. But
 as many Cautions are necessary in Bathing, I
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can hardly recommend the promiscuous Use of it, without the previous Advice of a Physician.

S E C T. XV.

I now proceed to consider the Aliments and Drinks of Soldiers, whence arise many and considerable Causes of Disorders ; when, for Instance, Errors are committed with respect to their Qualities, their Quantities, and the Method or Time of using them. These Errors ought to be the more carefully guarded against by the Soldier, because 'tis absolutely certain that Diseases easily arise, when a frequently interrupted Transpiration is accompanied with a Weakness of the Stomach, or when this Organ is fill'd with Crudities ; for as a free Perspiration, obtain'd by an accelerated Circulation of the Blood, assists Concoction ; so a bad or intercepted Transpiration diminishes and impairs the digestive Powers. The Quantity of Aliments ought to bear a just and due Proportion to the Excretions of the Humours procur'd by Labour, Fatigue, or any other Cause : For unless proper Care is taken in this Particular, the Soldier will become languid, and transpiring less freely, be disposed to numberless Diseases. This is sufficiently obvious from Experience ; since immediately after Famines, violently pestilential Disorders sometimes appear, in which the Assistance of the Physician can afford but little Relief, because they at first arise from a Defect of laudable Juices, and a subsequent

Reception and Multiplication of corrupted Miasmata.

S E C T. XVI.

'Tis superfluous to say much to the Soldier with respect to the Choice of Aliments and Drinks, since he is rarely blessed with Variety, and since salutary Aliments and Drinks, necessary for the Support of Life, are provided by Men destin'd for that Purpose. But it sometimes happens, either that an Army has its Provisions intercepted, or that the Men are necessarily subjected to long Fasting by tedious Marches, or some other Causes. When any of these Misfortunes happen, great Care is to be taken that the Soldiers should not have their Healths irreparably destroy'd by too copious and too sudden a Repletion. On such Occasions 'tis most expedient to begin with Broths, and when the Humours have received a fresh Supply from these, and the generous gastric Liquor, necessary to the Concoction of the Aliments, has reach'd the Stomach, we may proceed to more solid Aliments, tho' in such a Quantity as to be rather below Satiety, than equal or exceeding it. If the Necessaries for preparing Broths cannot be had, let the Yolk of an Egg be mix'd with warm diluted Wine, or with Ale; and if none of these can be had, let him gradually swallow with his Drink, an Handful of Meal or a Slice of Bread well soften'd in the Liquor.

S E C T.

S E C T. XVII.

The Soldier will often stand in need of the following noble Direction of *Celsus*. “ If, says that judicious Author, a Person unaccustom’d to Labour is fatigued, or a Person accustom’d to Toil, more exercised than usually, he must sleep with an empty Stomach. ’Tis also to be adverted to, that nothing is more prejudicial to a Person sweating in consequence of Labour, than cold Liquors; which are also of no Use to fatigued Persons when the Sweat has remitted.” ’Tis certain that cold Liquors incautiously drank, expose a Man to the Danger of an Inflammation of the Stomach and Intestines, by inducing a Stagnation of the Humours circulating thro’ the minute Vessels, and even a Coagulation of them by the actual Cold. If to the Circumstances already specified there is added any Cause of violent Anger, the Danger is still greater, and greatest of all when an ignorant Physician, observing some Efforts to vomit, under the Pretext of acting in Concert with Nature, exhibits Emetics, and by their Means renders the Inflammation more violent; for Poisons are not more dangerous than Emetics exhibited in these Circumstances, as also when the Patient is plethoric and of a sanguineous Temperament, inclining to the choleric or melancholic.

S E C T.

S E C T. XVIII.

Mindirerus, a Physician much conversant in Camps, in his *Medic. Milit.* speaks in the following manner. “ If you are excessively hot, “ and unable to bear Thirst any longer, take “ time before you drink to make-water, to wash “ your Mouth and the Arteries of your Temples and Wrists with cold Water. But if you “ drink precipitately you are in great Danger, “ since by so doing some have had their Lives “ destroy’d in twenty-four Hours Time, whilst “ others have been seiz’d with Cachexies, Asthmas, hectic Consumptions, Pleurisies, Emphyemas, and various insupportable Disorders of the Viscera. Labouring-Men then, and Soldiers placed in so imminent Danger, may, by the Bounty of Heaven, find a Medicine in every Meadow and Plot of Grass, thro’ all the Seasons of the Year. This Medicine is the *lesser Daisy*, the small Leaves of which are to be gather’d, cleansed, and made into a Sallad with Vinegar, Oil, and a little Salt; to be taken immediately after the Heat and Fatigue. This is so infallible a Medicine, that I cannot help thanking propitious Heaven, for having put it in my Power, by means of so cheap a Remedy, both to preserve the Health and remove the Diseases of many. In the Course of more than twenty Years Practice, I have not found a more infallible

“ fallible and efficacious Medicine; provided it
 “ is speedily used. There is no occasion for
 “ the Flowers, since the Leaves alone afford
 “ Relief. This Secret is of so great Impor-
 “ tance to the Welfare of Mankind in general,
 “ that it ought to be inscrib’d on the Gates of
 “ Cities, the Doors of Churches, and all Places
 “ of publick Resort.”

S E C T. XIX.

It often happens that Soldiers in Camps and on Marches, are forced to drink bad Waters. In such Cases they are to be careful, when they drink manifestly turbid Water, not to swallow with it Animalcules, or the Eggs of Insects, which, as we are certain from Experience, have proved highly prejudicial to the Health of many. But all Danger of this kind, may be prevented by straining the Water thro’ a fine Linen Cloth. If Time permits, Waters are better corrected by Boiling, which by exciting an intestine Motion, expels the sulphureous saline volatile Parts, constituted in the fermentative putredinous Motion, or produced by it. If Time does not permit, such Waters may be corrected by instilling a Drop or two of the Oil of Vitriol, which Medicine is for the same Purpose highly commended by *Schnebergerus* and *Mindirerus*. This Method of Correction is certainly consonant to right Reason; for a small Quantity of so concentrated an Acid, poured into a Vessel full of a fermenting

menting or putrifying Matter, manifestly check its intestine Expansion. Besides, this Medicine is of the greatest Efficacy for checking the most intense Heat, and the Thirst arising from it, because being exhibited diluted in so small a Quantity of Water, it does not produce the bad Effects which larger Draughts would do.

S E C T. XX.

Since we are now about to consider the Remedies of Thirst, so often troublesome to the Soldier, it will not be improper to examine what may be expected from the *Adipsa* or *Antidipsica* of the Ancients, so much extol'd for removing Thirst, or at least the uneasy Sensation excited by it. I'm therefore of Opinion, that the natural Desire of moist Aliment, in order to supply the Blood diminished by Sweat, and the rest of the Excretions, can neither be check'd nor removed, except by such Things as supply the Defect of the Humours; tho' at the same Time I'm persuaded that there is, by proper Remedies, a Possibility of correcting a morbid Thirst, arising from a saline Acrimony of the Humours scorching the Tongue, Fauces, and Palate; as also that there are certain Substances, which by checking the excessive Motion, and diminishing the Heat of the Humours, lessen the Dissipation of the most subtile Parts of the Fluids, and render the Crasis of the Humours better and firmer. Of the former kind are the temperating Powders

ders prepar'd of Absorbents, neutral Salts, and Nitre ; and of the latter kind are Nitre itself, gently acid Vegetables, and vitriolic Acids moderately used. Persons who can afford the Expences may for the same Purpose use Troches prepar'd of Cream of Tartar, with the Juices of Citron or Barberries, and a sufficient Quantity of Sugar. Some Things also afford a palliative Relief by exciting an Afflux of the Saliva, and consequently correcting the Dryness of the Mouth, as when Persons chew a Piece of Bread or Liquorice, or agitate a Ball of Lead in their Mouths.

S E C T. XXI.

These are sufficiently safe Remedies against Thirst. But greater Caution is to be used with respect to Summer-Fruits, some of which are ripe in the Beginning of the Summer, as Strawberries, Medlars, and Cherries, which are sufficiently safe, especially because at that Time noxious Dews rarely fall in the Night. But as the Summer proceeds and the Autumn approaches, noxious and unsalutary Dews render it necessary to use Fruit with much more Caution. Some kinds of Plumbs are in a particular manner to be abstain'd from, because they contain a Juice which proves purgative and easily excites Diarrhœas, which, with the Concurrence of other Causes, very common in Camps, degenerate into malignant and highly fatal Dysenteries. For the
same

same Reason Peaches and Apricots are to be moderately used, or rather totally abstain'd from when Dysenteries begin to appear. Melons and Cucumbers are not proper for Camps, especially for the common Soldiers, who rarely restrict themselves, and are at the same time destitute of the Means by which the Officers easily prevent the Injuries arising from them.

S E C T. XXII.

Something seems necessary to be said of Drinking in general, since the Health of Soldiers so greatly depends upon it; for an Army consists of Men of widely different Constitutions, Customs, and Methods of Life. Some have from their Infancy been inur'd to Malt-Liquors, and others to Wine. Wine may be safely given to those brought up in Countries abounding with that Liquor, but must be cautiously and moderately used, or mix'd with Water for the others, till they are accusom'd to drink it. Some of the Ancients indeed totally condemn'd the Use of Wine for Soldiers; but those Authors seem only to have meant the most generous, such as the *Greek*, the *Italian*, and *Hungarian* Wines, which require greater Caution than most of the *German* and other Northern Wines. But there were also among the Ancients Authors of equal Reputation, who observed violent Disorders produced in Armies, as soon as they began to be destitute of Wine. Thus *Appiandus de Bell. Parth.*

Parth. informs us, that when the Soldiers of *Antony*, after a long Scarcity of every Thing, and especially of Wine, came to more fertile Places and fed luxuriously, they began to be afflicted with Dropsies, and coeliac Disorders; which sufficiently proves, that it is not safe for Persons suddenly to pass from Things to which they have been accustom'd, to such as they have not been habituated to ; and that a sudden Repletion after a long-continued Scarcity, is highly dangerous.

S E C T. XXIII.

Among the Liquors most generally coveted by Soldiers, is Brandy ; which is either prepared from the Dregs of the Wine by Distillation, or from various kinds of Grains, especially Wheat and Barley. This Liquor, when drank to Excess, not only intoxicates the Soldier, and renders him unfit for watching and the other Parts of his Duty, but also greatly injures his Health and endangers his Life : For by coagulating the Blood and Lymph, it not only produces dangerous Stagnations, and consequently acute inflammatory Diseases, but also renders him obnoxious to a Phthisis or Dropsy, and brings him to such a State and Condition, that he can never be restor'd to perfect Health. The Abuse of such a Liquor is therefore justly prohibited, tho' the moderate Use of it is not only innocent but salutary.

S E C T.

S E C T. XXIV.

'Tis still more dangerous to use excessive Quantities of this Liquor when highly rectified, and possessed of a small Quantity of Phlegm; since it coagulates the Lymph and Blood, and proves highly prejudicial by drying and constricting the most subtile and minute Parts of the Body. But that which is less carefully freed from the Phlegm is less noxious to the Body, and may be used with greater Benefit and Advantage, provided it is not taken to Excess. Liquors of this kind are used more safely after any Aliments or Drinks, than when taken alone, but especially after a Person is over-heated or fatigued. This Liquor proves less detrimental to Health when drank in the Autumn, or Beginning or End of the Winter, when a cold and moist State of the Air prevails, than either in the Summer, when it produces a greater Exestuation in the already hot and expanded Humours, or in the severest Winter, when it quickly coagulates the Humours repelled from the Surface of the Body to the internal Parts, and produces in the large Vessels polypose Concretions, which lay a Foundation for many chronical Diseases, especially if it is drank by Persons of a sedentary Life, whose Humours are put in Motion by no manner of Exercise. But if a Person previously eats some Aliments, and drinks some less spirituous Liquor, as Ale, he will not easily be injured by it, if a-
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bout to use any subsequent Motion or Exercise. This Liquor will be better corrected, and prove less injurious, if it is drawn off Juniper-berries or Anise-seeds. What we before said of Wine, with respect to Habit and want of Custom, also holds true of this Liquor; only 'tis to be observed, that Wine is always less prejudicial than Brandy.

S E C T. XXV.

Having consider'd Liquors and Drinks, we are in the next place naturally led to treat of some Aliments. And tho' few Soldiers have it in their Power to abuse Delicacies and stimulating luxurious Aliments, yet some of these require the Physician's Directions; since Soldiers, ignorant of their Natures and Qualities, often endanger their Lives by them, especially when they find them readily and easily. Such are various kinds of Funguses, some of which are eatable; yet because these so nearly resemble others which are not so, and because the Variety of Seasons renders them at some Times innocent, and at others remarkably prejudicial, I would advise the Soldier totally to abstain from them, especially since 'tis certain that they nourish little, and that the only Service done to the Body, proceeds from the Broth and pinguious Substances added to them. Hence I would counsel the Soldier to follow the Advice of *Scherbius*, who asserts, that Funguses, the most sumptuously prepar'd, are fit for nothing but to be thrown to the Dunghill. If
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the greatest Emperors and Potentates have not been able to guard against the bad Effects of them, 'tis far less possible that the common Soldier should, since he cannot be at the Expence of Things necessary for their Correction and due Preparation. If however any Person should be unwarily injur'd by them, and perceives himself as it were suffocated, he is forthwith to have Recourse to Vinegar, and then to the Theriaca; or rather before the use of this Antidote, let him attempt to vomit, by drinking a large Quantity of tepid Water, with Oil and other pinguious lubricating Substances, and then thrusting his Finger into his Fauces.

S E C T. XXVI.

Among Fowls and Birds, all those which feed in marshy Places are not to be eaten without Danger, especially the Stork; for I was told by a Gentleman of unquestion'd Veracity, that an Officer of Distinction, upon eating Stork's Flesh, was for three Years after afflicted with a Weakness of the Stomach, nidorous Eructations, and an exhausting Diarrhœa, tho' he was before very robust, and could think of no Error he had committed, which could lay a Foundation for his Languor. Of the same kind are Herons, tho' perhaps more salutary, because they generally feed on Fishes, whereas Storks devour all kinds of Insects. Neither is the use of Quails entirely safe, since medicinal Observations furnish us with

with various Instances of Persons exposed to the most imminent Danger by eating them. This Malignity is principally to be dreaded when continual Rains have preceded or accompany'd the Harvest, and produced large Quantities of intoxicating Tares, which afford an agreeable Food for the Quails. The Soldier ought also carefully to guard against sucking the Stomachs of Thrushes; for however safe it may be to suck the Stomachs of such as have filled themselves with Juniper-berries, yet it must certainly prove highly prejudicial to Health, to suck the Stomachs of those fed on the Berries of the *Solanum Furiosum*, which abounding in many mountainous Parts, prove an agreeable Food for Quails.

S E C T. XXVII.

If a Soldier should happen to be straiten'd for Provisions when he is employ'd in forming Trenches, either in Meadows or marshy Grounds, he is to guard against eating soft, succulent, fleshy, and perhaps not ingrateful Roots, lest he should have the Misfortune to light on those of the *Cicuta Aquatica*, than which nothing is more prejudicial to Health, and even destructive of Life, as the celebrated *Wepfer*, and other judicious Physicians, have sufficiently evinced from numberless Observations.

S E C T.

S E C T. XXVIII.

As it would be too tedious, and perhaps impossible, to enumerate all the Injuries to be dreaded from particular Aliments and Drinks, I shall only observe for the Benefit of the Soldier, that Temperance is the best Preservative against many Camp Diseases, and consequently ought carefully to be observed, especially when Diseases begin to appear. When a Soldier however perceives himself injur'd by the Use of any noxious and insalutary Aliment or Drink, the best Method he can possibly take, is to vomit as soon as possible, by drinking large Draughts of tepid Water, and thrusting his Fingers into his Fauces. When the Air is impure and intemperate, and Camp Diseases begin to rage, the Soldier is to take particular Care that he neither come abroad fasting, nor approach such as are infected. When Dysenteries appear, the Soldier is to abstain from Pot-herbs and Fruits, and in their Stead use Rice, Sago, Barley cleansed and excorticated, with the Addition of some temperate aromatics and a little Saffron. On such Occasions the moderate Use of Wine is highly beneficial, and consequently ought, if possible, to be procured for Soldiers: Tho' I do not here mean musty Wines, but such as are good, and have acquired a due Age. Soldiers ought also carefully to guard against sophisticated Wines, and such as are edulcorated with Litharge: since these, instead
of

of being beneficial, prove highly injurious and bring on chronical Disorders. Such Wines may be detected by means of a precipitating Liquor prepared of Orpiment, with a Lixivium made of the Decoction of Quick-Lime. The Method of preparing this Liquor is taught by *Zellerus*, in his *Dæimasia Vinorum Lithargyrio Mangonifatorum*, and by *Rosinus Lentilius*, in his *Iatromnemata*. That the solid Aliments ought also to be safe and of a laudable Quality, we have before observed; for 'tis sufficiently certain, that mouldy and corrupted Bread, half-putrid Flesh, rancid Bacon, Pot-herbs mixed with Insects, and the Meal of Corn that is blasted or mix'd with Tares, not only nourish little, but may also generate Diseases in whole Armies. But these Things ought to be look'd to rather by the Pourveyors than the Physicians.

S E C T. XXIX.

Having considered the Injuries Soldiers may sustain from Aliments and Drinks, we now proceed to the third Class of Non-naturals, which comprehends Motion and Rest. Under the word Motion we include Exercises, which ought to be so habitual and familiar to the Soldier, that, as *Cicero*, from *Marcus Varro*, informs us, an Army seems, for this very Reason, to have been call'd *Exercitus*. Hence young Soldiers are train'd up and inur'd to Exercises; and even the Veterans, lest they should gradually lose the Habit

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bit and become inactive, are frequently recall'd to them. Nothing is more beneficial than this Practice, since it not only augments their Skill and Knowledge of military Labours, but also promotes Health, and renders them so hardy and robust, that they can easily bear Toils and Hardships, which would be intolerable to others. But both the Aliments taken, and the Intervals allotted for Rest, ought to be duly proportion'd to these Exercises; and Persons fatigued by violent Labour ought carefully to guard against those Errors we have specified with respect to Drinks. When the Body is intensely hot by severe Exercise, the Soldier ought to use a gradually gentler Motion, till he becomes cool; for nothing is generally more dangerous, than a sudden Transition from one Extreme to another.

S E C T. XXX.

As violent Exercise produces Sweat, or at least a copious Transpiration, than the sudden Suppression of which nothing is more prejudicial, so the Soldier ought to guard against such a Suppression by not throwing off his Cloaths when he is too hot, and by taking care not to sit or sleep in a cold and moist Place. If this cannot be sufficiently guarded against in Camps, the Soldier must warm himself before a large Fire, put on a dry Shirt, and go to Rest after he is refresh'd with a sufficient Quantity of Aliments and

and Drink. If the Day after a Soldier has endur'd great Fatigue, he perceives a Stiffness and Pain of his Joints, Frictions are of great Service, after which moderate Exercise is to be used. Some Soldiers are, by violent Commotion and Labour, thrown into Fevers, which, if the Men are otherwise sound, generally do not last above a Day, for which Reason they are call'd *Diary Fevers*. But these ought not to be neglected when petechial and malignant Fevers rage epidemically, since by overlooking their Beginnings, they are easily confirm'd, and prove mortal to much the sooner.

S E C T. XXXI.

Too long, and as it were perpetual Rest, is noxious to Men habituated to Toils and Fatigues, especially if it is join'd with a State of Security and Abundance of all Things capable of rendering Life easy ; for the Soldier is enervated by Idleness and Pleasures, of which *Hannibal* had a singular Proof when the *Roman* General declin'd engaging him on his Entrance into *Capua*, which being the most fertile and delicious Soil of all *Italy*, had so emasculated the *Roman* Cohorts, that they had entirely forgot their ancient Glory and Bravery. The Reason why Sloth and want of Exercise are prejudicial to Health, is sufficiently obvious ; for as Labour strengthens the Body, and excites and increases the Excretions necessary to Health, so Idleness

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renders the Body listless, and permits Sordes of all kinds to be collected and accumulated in it, by which means Diseases are easily and suddenly produced. I shall not from History attempt to shew with how great Care Generals have endeavoured to prevent such Misfortunes, since this would be of no Advantage.

S E C T. XXXII.

Little is necessary to be said concerning Sleeping and Watching; only tho' the Soldier must repair his Strength by Sleep, as well as other Men, yet he ought to manage in such a Manner as to be both ready and able to endure Watchings when Occasion and the Commands of his Officers require it. The Ability of Watching then, is greatly injur'd by too great a Repletion with Aliments and Drinks, especially of the spirituous kinds. Soldiers then, whose Turn it is to watch, ought totally to abstain from such Liquors, and even others ought to use them so moderately, as never to lose the Use of their Reason, or be overpower'd with Sleep by them. There are various Instances of Armies, who counterfeiting a Flight, have left their Camps well stock'd with Wines and Spirits, and who returning soon after, have found their Enemies intoxicated, and by that means routed them. As Liquors may be impregnated with Narcotic and other noxious Medicines, the Soldier ought always to suspect a Gift from the
Enemy,

Enemy, lest he should in the Issue pay for it by the Loss at once of his Life and Honour.

S E C T. XXXIII.

In the Preservation of Health, it is of the greatest Importance to preserve both the natural and usual artificial Excretions in their due State and Condition. The most considerable of these is insensible Transpiration, by which not only many Impurities and Superfluities are expelled, but also an open Passage preserved for the Matter destin'd for the Nutrition of all the Parts of the Body. But the Reason of this we have before given, when treating of the States of the Air capable either of preventing Transpiration, or rendering it too great. That Transpiration, especially when strong, is not to be suppress'd, we have already observed, when treating of Motion and Exercise.

S E C T. XXXIV.

When Soldiers transpire much under an hot and moist Air, with the Concurrence at the same Time of long-continued and violent Exercise, they generally become costive; which State, if neglected, produces various Disorders: For Congestions of the Humours to the Head soon follow, whence arise violent Pains, or Defluxions of the Humours to other Parts, perhaps before weaken'd and disposed to some particular

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Disease ; whence, with the Concurrence of other Causes, arise numberless Distempers. Constiveness is therefore to be speedily removed, not by drastic Medicines, which violently stimulate and pervert the peristaltic Motion of the Intestines, but by mild and gentle Laxatives, the best of which are saline Substances, exhibited in a copious aqueous Vehicle, as *Epsom Salt*, *Glauber's Sal Mirabilis*, the Salts obtain'd from Mineral Waters ; or neutral Salts, such as vitriolated Tartar, and the *Arcanum Duplicatum*. Crude Tartar is also capable of removing an obstinate Constipation. When, on such Occasions, Soldiers are seized with Gripes, or a *Cephalalgia*, nothing affords a more infallible, and at the same time a more pleasant Relief, than a warm Infusion of Senna Leaves, to which Tartar and Sugar may be added. If this Preparation cannot be had, let a Scruple of the Powder of Jalap Root, with an equal Quantity of the Cream of Tartar, or crude Tartar pulverized, be exhibited. But 'tis best to attempt nothing in that way, without the Advice of a Physician, because violent Diseases may perhaps be beginning, every one of which is to be treated in a different manner.

S F C T. XXXV.

'Tis necessary we should subjoin something concerning the Use of Venery, because 'tis hardly possible that an Army should be so well regulated, but some will indulge themselves in Lust and Wantonness. The Soldier then is above all things to guard against impure Copulation, if not from a Principle of Conscience and Chastity, yet, at least, from the Examples of his Fellow-Soldiers, who from Prostitutes have contracted the most terrible and unseemly Disorders, which require the most harsh and intolerable Cures, and are even sometimes never totally removed. But if a Soldier should happen to be infected, either in Consequence of his own Folly, or by Contagion communicated from his Fellow-Soldier, he is by no means to use Cures suggested either by himself, or by other unskilful Persons; since among a vast Number, severely afflicted by venereal Symptoms, there are very few who could not have been cured more easily, and at a smaller Expence, unless they had committed the Cure of their Disorders to Quacks and ignorant Pretenders. In venereal Cases, the Man does not always cure best who affords the quickest seeming Relief; and a Gonorrhœa suddenly suppress'd, proves the Cause of a numerous Train of subsequent Woes.

S E C T. XXXVI.

Those who have accustom'd themselves to Evacuations of Blood at stated Seasons of the Year, either by the opening of a Vein, or by Means of Cupping-Glasses, ought not suddenly to give over this Practice, especially if they have been long habituated to it. A spontaneous hemorrhoidal Discharge ought never to be suppress'd by the Soldier, neither is it to be neglected when suppress'd. He is not, however, to take every tensive and flatulent Disorder of the Abdomen, for an hemorrhoidal Effort, and repose great Confidence in promoting that Excretion. There are, indeed, in the present Age, impudent Pretenders, who boast of miraculous and infallible Cures for this Disorder. But I would have the Soldier consider, that this Excretion is less suited to a military than any other State and Condition of Life, for which Reason all Methods are rather to be tried than this Flux invited and promoted in a Soldier, even tho' the boasted Specifics for its Cure were infallible, which however they are far from being.

S E C T. XXXVII.

If a Soldier afflicted with the blind Hemorrhoids is of a plethoric Habit, he is to have a sufficient Quantity of Blood taken from him,
and

and afterwards use such Medicines as correct the Blood, and prevent Inflammation. At first 'tis only necessary to use a Fumigation prepared of the Shavings of the Horns or Hoofs of any Animals, interposing at proper Times the Use of the Ointment of Flax-weed. The Body is also to be render'd soluble by a Clyster, otherwise the Pain, Stagnation and Congestion, will be greatly increased by the excretory Effort.

S E C T. XXXVIII.

The Health of Soldiers is also greatly injured by Perturbations of Mind. Tho' indeed every brave and couragious Soul is either by the Hopes of Victory, or the Prospect of an honourable Death, nobly animated to despise Danger; yet as in so vast a Multitude all are not equally Proof against Perturbations of Mind, especially after great Calamities, and when greater are still in View, so proper Measures ought carefully to be taken to inspire the Minds of Soldiers, with Hope, Confidence and Alacrity; and the greatest Generals have always been at the most Pains in this Respect. The Physician seems to have little Concern with this, since his Care only extends to those who being seized with Disorders, are more apprehensive of Danger than they have Reason to be. Such Persons ought to be encouraged by proper Assurances, and restored to Alacrity and Health by such Medicines as are capable of restoring their Strength and procuring

an Expulsion of the Humours from the internal Parts, and an equable Distribution of them thro' all the Surface of the Body. In all such Cases, 'tis expedient to use Wine and gently spirituous Liquors: But to Persons who have long suffered under such Misfortunes, 'tis better to exhibit Resolvents, as Crabs Eyes saturated with Citron Juice or Vinegar; which Preparation is also highly beneficial for those whose Health is disordered by violent Anger. Thirty Drops of the *Mixtura Simplex*, exhibited in Wine or Water, also make an excellent Medicine in the same Cases.

S E C T. XXXIX.

Another Circumstance which often greatly injures the Health of Soldiers, is, that Quacks and Persons ignorant of Medicine, are from a detestable Fund of Avarice prompted to commence Physicians and cure Diseases. *Tobias Coberus*, in his *Observat. Castrens.* speaks on this Subject in the following manner. “ I can, “ without any Breach of Faith, affirm, that “ within ten Years past, these Harpies have “ kill'd more Soldiers than the hostile Armies “ have done.” For Mountebanks, *Jews*, Anabaptists, unskilful Surgeons, miserable Chymists, and petty Barbers, profess themselves Physicians; and even Soldiers, especially such as have often laboured under Venereal Disorders, and from their own Experience acquir'd some Know-

Knowledge of the Effects of Mercurial Unctions, are impudent enough to practise the healing Art. Some Persons also carry about Packets of Medicines, collected here and there, which are not perhaps bad, but require a skilful Exhibition, which as they are entirely ignorant of, they often greatly injure both themselves and others; for tho' they should prove prejudicial in no other Respect, yet 'tis certain, that by Means of their Essays and Experiments, the favourable Season is lost, and the Disease confirm'd.

S E C T. XL.

Nothing is more preposterous, tho' too common, than to attempt too speedy Cures in Soldiers, without considering whether they are safe or not. Hence it often happens that good Soldiers are often tormented and harrassed with dangerous Remedies, which rather suppress than remove the present Disorder, by which means many chronical, and hardly surmountable Distempers, are brought on. Of this kind are Preparations of Lead, so familiar with some Camp-Surgeons, for the Cure of Gonorrhœas; as also Arsenic, variously disguised and conceal'd, for the expeditious Cure of Intermittents; as also all Drastring Medicines, of whatever kind, as Purgatives, Emetics, Astringents, Opiates, and Sudorifics, which in the Hands of unskilful Persons are as dangerous as a Sword in the

Hands of a Madman. He is not a Physician who cures quickly, unless at the same time he cures safely; for it is far more eligible to suffer a simple Disease for some Days, in order totally to remove it by a safe Cure, than by suppressing it throw the Patient into a Cachexy, a Dropsy, a Phthisis, a Pox, an Asthma, and other Disorders generally incurable.

F I N I S.





OF THE
DISEASES
OF
SAILORS.

Sea-faring People are peculiarly subject to many Disorders, on account of various Circumstances relative to their way of Life: And as the Causes of these are very obvious, so the Methods of preventing, and even of curing them, would not be difficult, if due Attention was paid to the Use of the Non-naturals, as they are call'd by Physicians, the Abuse of which is the general Source of their Diseases.

What most Writers of Medicinal Institutes call by the Name of the Non-naturals, are,
First,

First, Air.

Secondly, Meat and Drink.

Thirdly, Exercise and Rest.

Fourthly, The Affections of the Mind.

Fifthly, The Things retain'd and Excretions.

Sixthly, Sleeping and Watching.

The Air which we are perpetually taking into the Lungs, and which is probably hourly entering the Body by the Pores of the Skin, has in all Ages been esteem'd by Physicians and Philosophers as of equal Importance with the Aliments we eat, and the great *Hippocrates* treats of it as such. In this Place I shall only observe, relative to the Air, that a certain vital Principle is contain'd in it, which is so necessary to Life and Health, that no Animal can subsist without it; and this is wasted by repeated Respiration, if confin'd in a close Place, so as to become insufficient for the Purposes of Life and Health. The Air also becomes impure and destructive to Health, when impregnated with the Effluvia exhaling from Animal Bodies, and all manner of putrid Substances, more especially when confin'd. Now the Rooms in Ships are close and very much crouded, so that the Air is confin'd and pent up, and consequently is not so fit for the Purposes of the Animal Oeconomy, as a more free and open Air, and one perpetually renew'd and ventilated. Besides, by the repeated Inspiration of great Numbers of People, it loses that vital Principle, which is known by

Expe-

Experience to be one great Source of Life and Health, whilst the perspirable Matter, exhaling from the Surface of Bodies, loads the Air with putrescent Effluvia, which must necessarily be drawn into the Lungs of every Person in the Room where it is confin'd. Now when by this means the Air is in any degree deprived of this vital Principle, of its Elasticity, or any other of its Properties necessary to carrying on the due and regular Circulation of the Blood, this Blood cannot be sufficiently press'd and comminuted in the Lungs, in order to be render'd fit for the subsequent Circulation in the Vessels dispersed all over the Body. Hence in the Blood there is a Tendency to run into Concretions, and form Obstructions in the Canals destin'd to convey it thro' all Parts of the Body. And the Consequence of Obstructions is Diseases of the chronic kind, if they are form'd leisurely and by Degrees; and of the acute sort, if suddenly and all at once.

The most ready Method of preventing the ill Effects arising from a confin'd and contaminated Air is, by all possible means to contrive that the Air in the Cabins or Rooms, may be perpetually ventilated and renew'd; and this is to be done, by keeping them as open and pervious to the Air as the Nature of their Situation will permit, and particularly by the Ventilators contriv'd by the Reverend Dr. *Hale*, which is an Improvement of great Importance in the Oeconomy

of Seafaring People, if duly attended to and put in Practice. And in order to purify the Air, and free it from putrescent Effluvia, Cleanliness would have a considerable Influence ; and it would be prudent to burn frequently in the Rooms Aromatic or Balsamic Woods, in Chafing-Dishes or Censers, contrived for that Purpose, as Cedar, Juniper, Fir, and all those which yield a Balsam of the Turpentine kind ; for these, as they burn, impregnate the Air with an agreeable Acid, which prevents Putrefaction, and perhaps in some measure restores to the Air what it has lost by repeated Respirations, and the Activity it has been deprived of by Stagnation. For the same Reasons it would be advisable sometimes, especially in hot Climates, to suffer Vinegar to exhale gently over a Fire, in the Apartments. And as these Precautions cannot always be taken, or put in Practice effectually, let the Sailors be as much upon the Decks as the Nature of their Circumstances and Duty will permit, that they may, as much as possible, respire in a free and open Air, perpetually renew'd.

With respect to the Aliment of Seamen, it consists principally of Beef, Pork and Fish, harden'd with Salt ; of unfermented, farinaceous vegetable Substances, as Wheat, Biscuit made thereof, Oatmeal, and Pease ; whilst their Drink is principally Water, which cannot always be
had

had pure, and is frequently used during a State of Putrefaction.

It is to be remark'd, that the Flesh of Animals harden'd by Salt, Smoke, Cold, or in any other manner, so as to be preserv'd from Putrefaction, is in Proportion render'd indigestible, or in other Words, not capable of being minutely dissolved by the Organs of Digestion. Hence it enters the large Blood-Vessels, as it were half dissolved, and when it arrives at the small Canals, whose Diameters are less than those of the half-digested Particles, these must in those Places stagnate, especially in the Glands, and upon the Surface of the Skin; in the former preventing the Secretions from being duly perform'd, and in the latter exciting Eruptions, Blotches, and Ulcers; in both Cases producing the Distemper usually call'd the Scurvy.

It is farther to be observed, that the unfermented Meal of all farinaceous Vegetables mix'd with Water, forms a tenacious Paste, which when moist, is much of the Consistence of Glue, and when dry, so hard, as to make a very strong Cement: Hence all Nations, in all Ages of the World, have found it, by Experience, necessary to ferment or leaven the Meal of Vegetables, before they made it into Bread, that the indigestible, viscid and tenacious Particles, might be so far attenuated, as to be comminuted by the digestive Organs, sufficiently to enter the minutest

nuteſt Veſſels, and carry on the ſalutary Purpoſes of Nature, in preſerving Life and Health. But when theſe farinaceous Subſtances are taken into the Stomach in an unfermented State, and are there mix'd with an aqueous Fluid, they there form a viſcid Subſtance, as is above deſcrib'd, ſuperior to the Powers of Diſteſtion, and which cannot, by the Organs of Diſteſtion, be divided into Particles ſufficiently minute, to be convey'd thro' the extremely fine Veſſels, and Strainers of the Body ; but muſt ſtagnate and obſtruct the capillary Tubes, with the ſame Effects as thoſe mention'd above with reſpect to harden'd Animal Subſtances. Hence, probably, the *Engliſh* and *Scotch* Mountaneers, whoſe Food conſiſts principally of Oatmeal unfermented and Water, are more than any other People in the World ſubject to the Itch, and cutaneous Diſeaſes. I have a particular Objection againſt the too frequent uſe of Pork, tho' even freſh. For a Swine, on account of its impure Food, Filthineſs, and habitual Lazineſs, is ſubject to ſome Diſtempers of the chronical kind, unknown in other Animals ; as the *Ferrigo*, a kind of Scurvy, the Meaſles, as it is call'd by the Peaſants ; which conſiſts of innumerable hard Concretions like Hailſtones, or Pearls, interſpers'd everywhere in the Fleſh ; and Tumors in the Glands, whence the Diſeaſe, call'd in Mankind the King's-Evil, is in *Latin* call'd *Scrofula*, from *Scrofa* a Sow. Now, as the Juices in an Animal Body muſt neceſſarily partake of the Nature

ture of that sort of Aliment of which they are form'd, it is next to a Demonstration, that the Juices of Swines Flesh must induce in the Body a Tendency to those Distempers, which they produce in the Animal that affords them.

I have, farther, an Objection to the too frequent use of Fish as Food. For the Scurvy first appear'd amongst the Inhabitants of *Maritime* Places, where Fish is almost their constant Aliment; and we learn by Experience, that a Diet of Fish, especially Sea Fish, particularly when harden'd by any means in order to preserve it, subjects those who live on it to scorbutic Symptoms. And this may possibly be owing to the rancid Oil contain'd in Fish, which is not easily overcome and assimilated to the balsamic vital Juices, by the Organs of Digestion.

As it is impossible to live on Shipboard without salt Provisions, or Food preserved by some Means from Putrefaction, and as these very Means render it hard, and consequently less digestible, the only way to avoid the bad Effects of such a Diet, is, to render it innocent, so far as it can be done, by all possible Methods. The first prudent Step therefore to be taken, is, to soften the salt and harden'd Meat by soaking it in fresh Water, when that can be procured. The next is to boil it down, in the manner the *French* prepare their *Bouillées*; for by this Means the Juices are extracted, and the Flesh is render'd soft, and more likely to be reduced by
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the Powers of Digestion to Particles fine enough to pass thro' all the minute Vessels of the Body.

Another excellent Precaution would be, to eat with the Animal Food, as much vegetable Aliment, not of the farinaceous sort, as could be procured. For this Purpose Carrots, Turnips and Cabbages, might be preserved tolerably fresh by burying them in Sand. How far this is practicable at Sea I cannot determine, but I should apprehend large Quantities of these might be cover'd with Sand in Casks, or even in the Ballast of the Ship, if they could be kept from too much Moisture. And I am very certain, that the Juices of Fruits, as Oranges, Lemons, and Apples, might be boil'd to the Consistence of a thick Syrup or *Rob*, and preserved in proper Vessels for any given Time, so that a Spoonful or more of it might occasionally be taken, dissolved in Water, with very good Effect, as a Preservative against the bad Consequences of such an Animal Diet as I have above taken notice of.

I am well inform'd, that in the *French Fleet*, the Sailors are not always fed with that sort of unfermented Bread, which we call Sea Biscuit, but that they have frequently fermented Bread bak'd fresh for their Subsistence; and it would be a very good Precaution, to follow their Example in our own Navy and Merchant Vessels; for in Proportion as this was practis'd, the Consequences

quences of eating habitually unfermented farinaceous Substances would be avoided.

In the preceding Treatises on the Diseases of Soldiers in Camps, some ways are mention'd of rendering impure Waters more salubrious; and on Shipboard large Vessels might be furnish'd with a *Craticula*, or Wicker Grate, within the Orifice where the Water is drawn out; and these Vessels might be half or three Parts fill'd with *Strata* of Chalk Stones and Gravel; and thus the Water, by running thro' these Beds of Earth, would deposit all or the greatest Part of its Impurities, and consequently would be more likely to answer the Purposes of the Animal Oeconomy.

As to Exercise, as Sailors are indispensably obliged to do their Duty, they must take it as it happens, and it is not likely they should have much too little when at Sea; and when in Port, it must be recommended to the Care and Prudence of every Commander, to take care they have not so much Rest, as to be prejudicial to their Health.

The Affections of the Mind, and the Things excreted and retain'd, scarcely come under our present Consideration, as they affect Sailors equally with other Men. And for the same Reasons I have omitted the Consideration of spirituous Liquors. And the Times of their Sleeping

ing and Watching are so absolutely necessary to their Duty, as they are at present regulated, that I don't see how it can be alter'd, unless it could be contrived, that they might sleep six Hours instead of four, which should seem to be better, as more conducive to Health.

Sailors are also subjected to various Disorders, on account of the Climates they visit, and particularly to all the Endemial Distempers of the Countries where they reside for any considerable Time. These are so numerous, that it is impossible to particularise them, every Port in the known World inclining to some singular Disorder, on account of the Air, Season, Soil, Sea, Mountains, Lakes, Fens, Rivers, Woods, Exhalations, and Meteors. But as these Diseases are not peculiar to Sailors, and require in them no different Treatment, they don't fall under our present Consideration. It is more to our Purpose, to specify those Distempers, which are excited by a sudden Change of a cold Climate for one that is very hot, and *vice versa*.

When a Person therefore sails from a cold Climate, *England* for Example, to one that is excessively hot, as *Jamaica*, the Heat dissipates the humid Parts destin'd to moisten the entire Surface of the Body, the *Aspera Arteria*, and Lungs: Hence the Fibres are dry'd, the Blood is thicken'd in the Lungs, and, in Consequence of this, the Action of the Lungs is impeded.

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Mean time the aqueous, spirituous, and all the volatile Parts of the Humors in the whole Habit are dissipated, whilst the fix'd saline Particles, the Oil render'd thick and tenacious, together with the Earth, run into Concretions, for want of the diluting Fluid they are thus deprived of, and form obstinate Obstructions in the Vessels and Viscera, with all their Consequences. The Heat also relaxes the Fibres, and renders their Action upon the Fluids weak, and hence another Source of Obstructions; because for this Reason they are no longer capable of pressing, comminuting, and propelling thro' the Vessels destin'd to convey them, the Fluids which now, on account of their Tendency to Coagulation, stand in need of their Assistance, more than at any other Time. From all these Causes Inflammations, Putrefaction, Loss of Appetite, obstinate Costiveness, Stranguries, Jaundices, acute Fevers, and Efflorescencies on the Surface of the Skin, are excited.

A very common Distemper which seizes Mariners in the *West Indies*, is what they call the *Black Vomit*. This is a very acute Fever, attended with excessive Yellowness of the Skin, and Discharges of a very putrid black Matter, both by Vomit and Stool. This, I apprehend, is thus generated: The Heat of the Climate liquifies the Fat or Oil of the Body, particularly that contain'd in the Abdomen, which is absorb'd by, and re-enters the Blood-Vessels,
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and especially the Branches of those Vessels which form, by their Union, the *Vena Porta*. And the same Heat dissipating the aqueous and fine diluting Particles of the Blood, these oleous or fat Particles unite with the fix'd Salts and Earth, and form Concretions very difficult to be dissolved, which are convey'd by the *Vena Porta* to the Liver, where the Circulation is at best very languid ; and here copious Obstructions are generated, which prevent the Secretion of the Bile from the Mass of Blood, which consequently tinges the Skin, and when very considerable, impede or absolutely stop the Circulation thro' this Organ ; hence it putrifies, the Vessels burst, and their Contents are discharg'd in a State of Putrefaction, by Vomit or Stool, or both.

As this Disorder is extremely dangerous, and generally fatal when violent, it is more prudent to prevent it, than to expect a Cure when it is form'd. In order therefore to this, it would be adviseable to preserve the most exact Temperance with respect to Eating and Drinking, the Passions of the Mind, Exercise and Rest, Sleeping and Watching. Let it be remark'd, that by Temperance I don't mean Fasting, or a Regimen tending towards it, but a moderate Use of the Non-naturals without any Excess. But above all things, let all sudden Transitions from great Heat to Cold be avoided ; and for this Reason, after the excessive Heat in the Day, especially if any heating Exercise has been used, it

it is highly imprudent for any one to expose himself to the moist and cool Air in the Evening, or during the Night ; for by this Conduct, the Oil of the Body the sooner coagulates with the fix'd Salts and Earth, and the Obstructions are more deeply and obstinately fix'd.

As for the Method of Cure, I have yet heard of none that has been attempted with any Degree of Success ; and indeed when the Liver is so far obstructed as to prevent absolutely the Blood brought to it by the *Vena Porta*, from passing into the *Vena Cava*, I don't comprehend any Possibility of a Cure. The Attempt therefore to relieve, must be whilst the Disease is recent, and before it has made any considerable Progress. Besides, it should not seem that a natural Crisis can be much depended on ; tho' sometimes the Disease has been observed to be critically resolved by a bilious Diarrhœa, mix'd with some Blood ; by a copious Discharge of thick red Urine, with a white Sediment, continuing for a long Time ; by a copious Hæmorrhage from the Nose ; or by a spontaneous *Diaphoresis* in the Beginning of the Disorder, attended with an Alleviation of the Symptoms.

It has been a Point much controverted, whether Bleeding in this Distemper is of Service or prejudicial ; and I believe it is generally esteem'd the latter, on account of some ill-grounded Prejudices against it. But as the Distemper is to

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all Intents and Purposes an Inflammation, and that excessively violent, if any thing can relieve, it must be Bleeding in the Infancy of the Disease, immediately after the Patient is seized. But in order to bleed with good Effect, a large Quantity of Blood must be taken away, even *ad Animi Deliquium*, and the Operation must be repeated very soon, and so often as the Symptoms require, that is, till they are sufficiently alleviated. Mean time, acescent, antiseptic, and emollient Decoctions of vegetable Substances must be copiously and almost perpetually drank; and the most emollient and resolvent Fomentations, in which the best Vinegar in a due Proportion is an Ingredient, must be continually apply'd to the *Hypochondria*, the Region of the Liver, and the entire Abdomen. The most emollient and resolvent warm Baths also, must be attended with very good Effect; nor must frequent Clysters of the same kind be omitted. In short, every thing must be done, that can contribute to the Relaxation of the Vessels and Viscera, and the Resolution of the obstructing Matter. As to Medicines, Nitre, as in all Inflammations, so in this Species, must be very good; and for the same Reasons, all the neutral resolvent Salts must be of Service, as *Glauber's Salt*, the *Terra Foliated Tartari*, and *Tartarus Vitriolatus* made in *Boerhaave's* manner, so as to be not acid, but perfectly neutral. Mean time, all Heat, whether from the Air, Medicines or Regimen, is absolutely destructive.

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As to Blisters, I strongly suspect that they do more Prejudice, by drawing off the serous and diluting Parts of the Blood, than Service, by Stimulation, or fusing the obstructing Matter. Besides, the acrid Salts of the Cantharides, when in the Blood, must necessarily increase that Putrefaction, to which there is already the greatest Tendency, and consequently render the Disorder much worse.

Sometimes when the Obstructions are form'd gradually, and in no very great Degree, they are, by the Force of the vital Powers removed from the Viscera, and convey'd to the Surface of the Body, where they form Eruptions of long Continuance. In this Case I should apprehend gentle Mercurials, continu'd for some Time, would promise the fairest for a Cure. By these I mean the *Æthiops Antimonialis*, or the Pills made in imitation of *Belloste's*, of Mercury divided with Turpentine, and mix'd with some proper Cathartic, of which the *Pilulæ Mercuriales* of the new College Dispensatory, may serve for an Example.

When Sailors change a warm or temperate Climate for one that is more cold, the Cold contracts the Fibres, strengthens them, and consequently increases their Action upon the Humors. Mean time the severe Cold inspissates the Fluids, especially where most exposed to its Influence, as

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in the Lungs. Hence Coughs, Pleurifies, Peripneumonies, and Inflammations of all kinds, Catarrhs; and, if the Cold is excessive, Gangrenes and Sphacelations are excited. Upon the whole, the Diseases of Sailors in cold Climates differ little from what we experience in our own during Winter, and require the very same Methods of Cure.

With respect to the Scurvy, the Product both of hot and cold Climates, I have already specify'd the Methods of preventing it, which would, also, very much contribute to a Cure. And I am of Opinion, that the *Æthiops Antimonialis*, taken in the Quantity of fifteen Grains, or a Scruple twice a Day, would give eminent Relief in this Disorder.

When *Germanicus Cæsar*, according to *Pliny*, Lib. xxv. Cap. 3. had removed his Camp beyond the Rhine in *Germany*, his Soldiers had only one Spring of fresh Water, in that Maritime Tract of Land, by drinking of which, in the space of two Years their Teeth fell out of their Heads, and the Joints of their Knees were enfeebled and relaxed. For these Misfortunes there was at last a Remedy discovered, which was the Herb *Britannica*, a most salutary Medicine, not only to the Nerves and in Disorders of the Mouth, but also against an Angina and the Poisons of Serpents. The *Frisians* who were in the Camp, first shew'd it to their Fellow-Soldiers.

Soldiers. The same Author is of Opinion, that the People who are Borderers on the *British* Shore, gave it the Name of *Britannica*, out of Respect to *Britain*; but, adds he, 'tis certain, that as that Island now lies open, this Plant does not go by the same Name. The Virtues ascrib'd to this Plant very nearly agree with those of the *Hydrolapathum Magnum*, or Great Water Dock; which, according to *Muntingius*, is the true and genuine *Britannica* of the Antients, since both its Figure and Virtues answer in all Points to the Descriptions they have left us of it. This Author also endeavours to prove that the Word *Britannica* is of *Frisian* Original, because it is not probable that this Plant took its Denomination from the Island of *Britain*, to which, as a respected neighbouring Land, the *Frisians* dedicated it, according to *Pliny's* Conjecture. *Brit*, in the *Frisian* Language, signifies to consolidate, or render firm and compact; *Tan*, is a Tooth; and *Ica* or *Hica*, signifies Ejection. Hence the Name *Britannica* imports, *The Herb, which consolidates and confirms the loosen'd Teeth, or cures the Disease which makes the Teeth fall out.*

Every Part of this Herb, as the Stalks, Leaves, Flowers and Seeds, but especially the Roots, are powerfully astringent, consolidating and conglutinating; for which Reason it restrains and heals all sorts of Putrefactions, as Erysipelas, whether ulcerated or not, Herpes, phagedenic Ulcers, and Gangrenes. It stops Hemorrhages from any

Part, as also the Hæmorrhoids and Menfes; and is effectual for all those Purposes, in which other cold Astringents are requisite.

It also cures all Diseases of the Nerves, as Twitchings, Contractions, Tremblings, Convulsions, Palsies, febrile Heats or Rigors. It banishes Serpents and other venomous Animals, and heals their Bites, for which Reason it is class'd among the Alexipharmics. It affords Relief under all Species of Quinsseys, Relaxations of the Uvula, Swellings of the Tonsils, and other similar Disorders of the Mouth, Fauces and Stomach, which require Astringents; as also in Abscesses, Tumors and Ulcers. It removes various Sorts of Defluxions, and cures Diseases which proceed from latent Causes, such as the Scurvy affecting the Mouth and Legs, and Ulcers of the Legs.

The green Leaves are applied to the ulcerated Parts for twelve Hours, and then chang'd. The Juice also harden'd by the Sun in the Dog-Days, or inspissated by the Heat of the Fire, is used for anointing the Sores.

Now as the Scurvy, according to *Muntingius*, has taken so deep Root in some Persons, that they can receive but little Benefit from a Decoction of the *Britannica* alone, he communicates the Preparation of a Medicine never before made public, that all might be able to pre-
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pare it for themselves. This Remedy is according to him more precious than Gold, and ought to be kept in Families, as an inestimable Treasure, against all Attacks or bare Suspensions of the Scurvy. It is prepared thus.

Take of Saffron two Ounces ; Mace, Liquorice, the best Cinnamon, black Pepper and Gentian Root, each three Ounces ; and of *Britannica* six Ounces : Pulverize them all grossly, and infuse them in sixteen Pints of *Spanish* white Wine, together with three Pints of Elder Vinegar, or some other strong Vinegar ; adding to the whole, three Yolks of new-laid Eggs. Let them macerate together in a glaz'd Stone Vessel, well clos'd, for seventy-two Hours in hot Ashes, Horse-Dung, or Hot-Sand, but with no greater than a tepid Heat. Then set the Preparation aside for Use.

Let the Patient take of this Decoction, three, four, five, or even six Ounces, according to his Constitution, in the Morning fasting, for fourteen or twenty Days together, or more. To quench his Thirst, let him drink every Day of the best Rhenish Wine ; or if he is accusom'd to Beer, let him use it not new, but defecated and well boil'd ; and as often as he drinks it he must also have three Spoonfuls of this Wine.

But it is here to be observed, that if the Patient labours under a Drought, or violent Cough, or is suspected to be in a Consumption, instead of the Pepper, let six Ounces of Liquorice be added. When the Wine is almost consum'd, an equal Quantity, or twice as much, may be added to the Ingredients. By the Use of this Wine, not only an inveterate Scurvy, especially without a Fever and Inflammation, but also all scorbutic Disorders, inveterate Hernias, Palsies, and *Lues Venerea*, are most successfully cured.

As the *Britannica*, or great Water-Dock, and this Remedy recommended by *Muntingius*, have been try'd with very good Effect on Shore, I should think it very likely to succeed on Ship-board, in the Scurvies to which the Sailors are so remarkably subject.

The *Britannica* is a very large tall Dock, growing on the Banks of Rivers:-It has a thick, round, and juicy Root, spongy when old, about an Hand-breadth in Length, divided below into several pretty thick Parts, and surrounded with fibrous little Roots. The Colour of it, when newly taken out of the Ground, is black on the out-side, and white within, but soon alters into a redish yellow, like that of true Rhubarb; and the Root, when dry, turns quite brown. The Leaves are not many, but the longest of all belonging

longing to any of the kinds of Docks, situated near each other, tho' not closely join'd, but separated, always pointing upwards, of a Foot and an half or two Feet in Length, and three or four Fingers broad, being widest in the middle, and running up to a sharp Point like the Head of a Spear, of a deep Green or Sky-Colour, inclining to a dark Green above, but paler underneath, with pale green Fibres of a pretty hard, thick, dense, close and firm Substance, with the Edges sometimes, especially of those which grow to the Stalk, a little curled. They stand on Pedicles of a moderate Length and Thickness, and sometimes red near the Ground. They have also an Astringency with some Degree of Acidity, and fall off towards the End of *August*. The Stalk is single or multiplied, according to the Age or Bigness of the Plant, two, three, and sometimes four Feet in Length; strait, round, green, hollow, adorn'd on both Sides with lesser Leaves, which bend a little upwards as well as downwards, and from whose *Alæ* proceed here and there little Sprigs, laden with little, short and pendulous Leaves, and pale Flowers, which open towards the End of *July*, and are thinly disposed about the Joints, but not in the manner of Whorles. The three outer Petals of the Flower are conspicuous on both Sides for two hairy pale whitish Gemmulæ, but these are observed in no Species of the *Lapathum*, but the *Virginian Britannica*. The Seed is small, triangular, and of a spadiceous Colour.

The Dyſenteries and Fluxes, to which Sailors are peculiarly ſubject, I take to be excited in the following manner. When, by the Abufe of the Non-naturals, conſiderable Obſtructions are form'd in the Liver, Spleen, Meſentery, Pancreas, and other Parts of the Body, if the vital Powers are ſtrong enough to attenuate the obſtructing Matter, and remove it from the Parts where it reſides, it is convey'd to the Inteſtines, as the moſt convenient Outlet, and carry'd off by Stool. This, then, is a ſalutary Effort to remove a Diſeaſe. But as Nature, or the vital Powers, ſometimes operate to Exceſs, and by that means deſtroy the Life which they mean to preſerve; ſo in this Caſe, too much of the vital Juices are carry'd off by Stool, and often Blood, ſo that what remains is not ſufficient to ſerve the Purpoſes of the Animal Oeconomy; and what was meant as a Remedy becomes fatal.

The Method of treating Fluxes or Dyſenteries by Aſtringents and Opiates, is what I could never approve, becauſe it confines the acrimonious Matter, which ought to be carry'd off; which, if it does not excite the ſame Diſtemper a- freſh, is very likely to cauſe other Diſtempers not leſs troubleſome and fatal, as Dropſies, Colics, and Fevers.

But the very beſt Method of curing Fluxes and Dyſenteries, is, to give the *cerated Glaſs of Anti-*

Antimony, described in the Medical Essays, in the manner directed below, confining the Patient to a Diet of Wheat Flower boil'd in Water, or Milk, or both, in the manner the Country Food call'd *Hasty Pudding* is made. At the End of the Distemper, it may be proper to strengthen the Intestines by exhibiting the *Cortex Elaterii*, either in Substance, or Tincture, or the Extract of Campeachy, or Log-wood.

The *Colica Pictonum*, or dry Gripes, is also a Distemper which seizes many who sail to the *West Indies*. In this the Belly is affected with an intolerable pungent Pain, sometimes in one Part only, and at other times in several Parts of the Intestines. In a short time the Disorder becomes more diffusive, and extends itself from the Point where it was first felt, to a greater Distance; and this is done in such a manner, that the Fibres of the Bowels seem to be contracted and drawn up from the Anus and the Pylorus towards the Part primarily affected, as into the Center of Misery. During this Scene of the Distemper, which sometimes lasts eight, ten, or fourteen Days, the Patient is upon a perpetual Rack, with hardly any Remission of Pain. He undergoes all the various Modifications of Torment, and the burning, lancing, and biting Pains, by Turns afflict him with a Diversity of grievous Sensations. The Belly, all this time, continues obstinately costive; very little Urine is discharged; the Strength is greatly

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impair'd, and the Habit exceedingly wasted: The Extremities are cold, and the Patient frequently falls into cold Sweats and Deliquiums: The Affections of the Mind are much disordered; Grief, Anger, Rage and Despair, usurp the Place of Reason; the vital, animal, and natural Functions are perverted; and the miserable Patient at last sinks under the Agony of his Affliction.

The principal Causes concurring to the Production of this Colic, are immature, austere and astringent Fruits, eaten in too large Quantities; immoderate drinking of strong Punch, highly acidulated with the Juice of Limes, and traveling in the Night after the too copious Use of spirituous Liquors.

When the Intensity of the Pain begins to abate, the Patient often observes a sort of tingling Uneasiness thro' the spinal Marrow, which propagates itself thence to the Nerves of the Arms and Legs, which at this Time are very weak and debilitated. This Weakness and Inability increases daily, till in a short time it terminates in a confirm'd Palsy of the Extremities.

This Distemper I apprehend to be caused by Obstructions in the Mesentery and Coats of the Intestines, which when in some measure resolved and absorbed by the circulating Fluid, are convey'd to, and deposited upon the spinal Marrow,
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or its Membrances, by what Physicians call a *Metastasis*, and there excite that Species of Palsy which is consequent to this Colic.

The Method of Cure is, to appease the excessive Pain by Opiates, among which Dr. *Towne* prefers the *Pilulæ Matthæi*, or *Matthews's Pills*; and to give every three or four Hours a lenient Potion, prepar'd of Manna, Cremor Tartar, purging Salts, and solutive Syrup of Roses; and if the Vomiting is so violent as not to suffer it to stay on the Stomach, some Anti-emetic Mixture must be exhibited, in which Opium is an Ingredient; and the Opiates may be repeated in the Intervals betwixt the purgative Draughts, as the Violence of the Pain requires. An emollient Clyster must also be repeated every four Hours, in which two Drams of Balsam of *Cappivi* is dissolved, till Stools are procured. Mean Time Fomentations prepar'd of a Decoction of Juniper and Bay-Berries, Flowers of Chamomile, and Seeds of Anise, Caraway, and Fennel, are to be apply'd to the Belly by means of Flannel Stups; and after these a Liniment of the *Unguentum Dialtheæ*, mix'd with Laudanum and Camphire, may be rub'd into the Part affected. And a *Semicupium*, or Bath prepar'd of nervous Ingredients, as Lavender, Rosemary, Sage and Chamomile, are said to afford considerable Relief.

When the Pain is alleviated, and some Stools have been procured, it will then be proper to
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purge with a Scruple of Calomel, mix'd with some of the stronger Cathartics, as *Pil. Cochicæ*. And such Purges are to be occasionally repeated, till the Body is render'd sufficiently soluble, and there is no farther Occasion for them. Then the Patient is to take two Scruples of Balsam of *Peru* on Sugar, or in some proper Vehicle, every six Hours. Or two Drams of *Barbadoes* Tar are to be given three times a Day, till the Disorder is absolutely cured.

In order to prevent the subsequent Palsy, Dr. *Towne* advises, as soon as the tingling Uneasiness, and the Numbness of the Limbs is perceived, to chafe the whole Length of the *Vertebræ* and Limbs with *Barbadoes* Tar and double distill'd Rum, mix'd together; and he adds, that when the Palsy is form'd, the only Remedy is *Bath* Water drank, and pump'd upon the Part. But I have twice known briskly operating Mercurials, frequently repeated, to give great Relief in this Species of Palsy.

I have omitted taking notice of those Fevers commonly call'd *Calentures*, because by the best Enquiry I have been able to make, there is no such Distemper, different from common acute Fevers attended with a *Delirium*.

As the Condition of Sailors does not admit of good nursing, a proper Regimen, and some other Helps which those on Shore may be assisted with,
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and as they are generally pretty strong and robust, I should think that such Medicines should be exhibited to them for the Cure of their Distempers, as operate with great Efficacy, and produce considerable Effects in a little time. I should think therefore, that a kind of *Pharmacopœia Nautica* should be contrived, calculated on Purpose for the Use of Sailors; and in this, I think, the following Preparations should by no means be omitted.

Vitrum Antimonii Ceratum.

Cerated Glass of Antimony.

Take of the Glass of Antimony in Powder, one Ounce; and of Bees-Wax, one Dram: Melt the Wax in an iron Ladle, then add the Powder: Set them on a slow Fire, without Flame, for the Space of half an Hour, continually stirring them with a Spatula: Then take it from the Fire, pour it upon a Piece of clean white Paper, powder it and keep it for Use.

Dr. Young, who made this Medicine publick, informs us, that when he prepared this Quantity, it lost a Dram of its Weight, and that the Glass melts in the Wax with a very slow Fire. He was at first so scrupulous in preparing the Medicine, that he wish'd the Degree of Heat had been assign'd, as well as the Time necessary for the Preparation; but he afterwards found that he varied both the Time and Degree of Heat,

Heat, without perceiving any Difference in the Operation of the Medicine. - After it has been about twenty Minutes on the Fire, it begins to change the Colour, and in ten more comes pretty near to the Colour of Snuff. By that Colour he knew, that it was sufficiently prepar'd, without attending to the Degree of Heat or Space of Time. The ordinary Dose for an Adult is ten or twelve Grains, but for the greater Safety he commonly began with six: To a strong Man he ventur'd to give a Scruple, which sometimes work'd so mildly that he thought it too weak. To a weakly Constitution he advises to give five or six Grains, increasing the Dose afterwards according to the Operation. For a Boy of ten Years of Age, he orders three or four Grains; and for a Child of three or four Years, two or three Grains. This Medicine, he informs us, has been used with Success for the Cure of a Dysentery, and the Preparation of it was kept a Secret for many Years. When it was first communicated to him, he thought it so harsh and dangerous a Medicine, that he had not Courage to try it for some Years, and even then began the Dose with one Grain, and gradually increased it to twenty; which, as he informs us, was the highest he had given. As soon as he was convinced, by a number of Experiments, that it was both mild and efficacious in curing Dysenteries, he publish'd the Receipt in the *Edinburgh News-Paper*, being under no Promise of Secrecy with regard to this, and being resolved never to make a Secret of any Medicine
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whatever. He informs us, that he did not expect that any Physician would incline to give a full Dose at first upon his Authority ; but says, the Cautious may give as small a Dose as they please, make the first Trials in almost any Disease where Purgatives will do no Harm, and increase gradually as they find it operate. He gave it in Dysenteries, with or without a Fever, whether epidemic or not. He tried it often where Bloodings and Vomits had been premis'd, as also where they had not, with very good Success. He never chose to give Opiates in the Beginning, especially where there was a great Sickness, because tho' Opium gives great Relief to some, yet at other times he found both the Sickness and Purging increased by it the following Day. He never began with a larger Dose than ten Grains, because that Quantity frequently operates as violently at first as twenty at last, even upon the same Patient. In its Operation it sometimes makes the Patient sick, and vomits. It purges almost every Patient ; tho' he says, he has known it cure without any sensible Evacuation or Sickness. Nay, in violent Dysenteries, the Patients purge seldomer with it than without it. If it purg'd the Patient sufficiently, or any ways fatigued the Patient, he intermitted a Day or two between each Dose, just as he did with other Purgatives. As he informs us that he had cured some with one Dose, so he has been oblig'd to give others five or six ; especially, when the first Doses have been too mild. He also informs us, that

that he found a weak Dose to do no good in chronical Disorders. After the second or third Dose, the Stools are seldom bloody, the Gripes and Sicknefs are much abated, and the mucous Stools are less viscid. He orders it to be given on an empty Stomach, because he then thought that it operated most mildly. He discharg'd drinking any thing after it for three Hours, unless the Patient was very sick or disposed to vomit, in which Case he gave warm Water, as in other Vomits. He forbids giving it for a Diarrhœa in the End of a Consumption; tho' he says he has cured some other Diarrhœas of long standing, by large Doses of it, but he observed it to fail oftner here than in Dysenteries. He discharged the Use of all fermented Liquors, and recommended a milk Diet, with Rice or Bread, Chicken-Broth, or Water-Gruel. He gave nothing cold, except a Tea Spoonful of Hartshorn Gelly, as often as the Patients pleased, and sometimes he indulged them with a little Curran Gelly, to refresh their Tongues. He says he gave it safely to Women with Child, and affirms that to Children on the Breast half a Grain of it might be exhibited.

Kermes Mineral, or Pulvis Carthusianorum.

In French, *Poudre des Chartreux.*

Take of Antimony four Pounds; of the Solution of fix'd Nitre one Pound; and of Rain-Water three Pounds: Boil them for three Hours, then the boiling Decoction is pass'd thro' Cap-paper, and set in a quiet Place

Place for twenty-four Hours, till a yellowish or Saffron-colour'd Powder subsides to the Bottom of the Vessel, the Liquor remaining clear. This Liquor being pour'd off by Inclination, the Powder is first wash'd by frequent Affusions of warm Water, till it is deprived of all its Salts; and then about four Ounces of Spirit of Wine are burnt upon it, and it is afterwards dried and kept for Use.

This Powder is look'd upon as a kind of Panacea or universal Remedy. It sometimes excites Vomiting, especially when it meets with an Acid in the Stomach; and is sometimes cathartic, diaphoretic, and sudorific, according as it is determined by the Disposition of the Patient to act upon any one Humour more than on another. It is given from one to four Grains; or sometimes, when it is design'd only to attenuate or divide any Viscidities in the Fluids, in the Quantity of half a Grain, repeated every three, four, or six Hours. In acute Fevers, where there is a great Crudity and Spissitude of the Humours, it is given in small Doses with Success. It changes the crude and serous Evacuations by Stool, into a more bilious Consistence, by attenuating the viscid Bile, and so disposing it to pass off by Stool. It is often given with Success in the Beginning of the Small-pox and Measles, when they are apprehended to be of a bad kind, in small Doses, mix'd with Bezoardic Powders or Absorbents; such as
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Crabs-Eyes, red Coral, Pearl, Egg-Shells, Crabs-Claws, and the like ; for thus it excites a Spitting and Diaphoresis, removes Anxieties, corrects the Lymph and coagulated Serum, and raises such an Effervescence in the Blood as tends to purify it. *Glauber* confirms these Virtues, by the Examples of seven Children in the Small-pox. *Frederic Hoffman* commends the use of this Powder in obstinate autumnal Agues ; because it powerfully opens Obstructions, particularly of the Liver, by which these Fevers are produced, especially when taken in the Quantity of a Grain, mix'd with detergent antifebrile Salts, such as the Salt of Wormwood, the febrifugous Salt of *Sylvius*, vitriolated Tartar, and the like. *Schroder* order'd it in the Quantity of half a Grain or a Grain, three or four times a Day, in the intermitting Fevers of Children. He also commends it very much for correcting the Acrimony of the Serum, and especially of those Tears, which produce Pains of the Eyes, and very bad Ophthalmias. The same Author mentions a Woman labouring under scorbutic Symptoms and Defluxions of so acrid a Nature, as to corrode her Lungs and bring on a Spitting of Blood, who, by using this Sulphur of Antimony in very small Quantities, corrected the Acrimony and stopt the Motion of this Serum, and thereby prevented the growth of a Disease, which must otherwise have been productive of very fatal Consequences. *Hoffman* affirms, that it is a very effectual Remedy in those chronical Diseases, which proceed from long-protracted Obstructions
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of the Viscera. In a Dropsy, for instance, it is very properly mix'd with Filings or Crocus of Steel and Nitre ; in Epilepsies, with all the Cinnabars ; in the Scurvy, with the *Arcanum Duplicatum* ; in Dysenteries, with the *Confectio de Hyacintho* ; in a Dysury or Complaints of the Stone, with white Nettle or Pellitory-Water ; and even in Pleurifies and Peripneumonies, he frequently orders it in the Quantity of three or four Grains, in a Glass of strong *Spanish* Wine, in Carduus Water, an Infusion of red Poppies, or the Juices of Dandelion or Borage. *Junker* observes, that this Powder has, in many Patients, suspended in one Moment the Effects of a suffocating Catarrh ; sometimes by producing a gentle Vomiting, sometimes by Sweating, and sometimes without any sensible Evacuation ; and he advises it in these Cases, to be mix'd with some proper digestive Salt. It may be given very advantageously to cachectic Girls in the Quantity of a Grain, mix'd in ten Grains of *Crocus Martis aperiens*, and of the *Aurum Duplicatum*, the Dose being repeated twice a Day. This Powder may be given, either alone, or mix'd with a little Sugar, and diluted with Wine, Water, or any other proper Liquor. It is also sometimes exhibited in Oil of sweet Almonds, or in Conserve of Violets or Borage, in Form of a Bolus.

It is however to be observ'd, that this Powder is not to be exhibited, till the Quantity of the
Blood

Blood has been lessen'd, and all the Fluids sufficiently diluted and attenuated; for, as by the Use of it the Blood is very suddenly rarified and put into a kind of Effervescence, so if the Vessels are before full, they must be still more distended by the increased Heat and Motion of the Blood and other Fluids, by which means, hurtful Congestions may be form'd in the Viscera. It ought therefore never to be exhibited till the Dangers arising from a Plethora are removed, and the Humours render'd fluid, by large Quantities of Diluents often repeated.

Æthiops Antimonialis.

Antimonial *Æthiops*.

This Medicine is thus prepared :

Flux equal Parts of Antimony and Sea Salt in a Crucible, for an Hour; then let the Matter cool, break the Crucible, and knock off the Scoria; then rub equal Parts of the Regulus made in this manner, and Mercury together, till they are sufficiently incorporated.

This requires more Labour than the *Æthiops Mineral*, but largely repays the Trouble by its great Efficacy; for there are few Medicines in use of equal Virtue, since it cures most chronical Disorders of the Skin, and is admirable in all kinds of Obstructions. Hence it is beneficial in the King's Evil, the most obstinate glandular Diseases, and many chronical Disorders which
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are out of the Reach of other Remedies, The Dose is about fifteen Grains, and the Medicine itself is justly accounted a powerful Alterative and Anti-Scorbutic.

Crocus Metallorum Mitior.

Take of Antimony, two Parts ; and of Nitre, one Part : Let them be separately reduced to Powder, and intimately mix'd : Then let the Mixture be gradually put into a Crucible, no more than red hot, in order to flux it ; and when the Matter is poured out, let it be powder'd with the Scoria.

Some order this Preparation to be made in such a Heat, that the Antimony and Nitre may not be melted, and that consequently the *Scoria* may not be separated from the *Crocus*.

Ten Grains of this are said to make a most excellent Emetic, and to exert very extraordinary Effects in all feverish Disorders, the Small Pox, the Jaundice, and all Disorders proceeding from Impurities of the Intestines, and Obstructions in the abdominal *Viscera*.

Pilulæ Mercuriales.

Mercurial Pills.

Take of Quick-Silver, five Drams ; of *Strasburg* Turpentine, two Drams ; of the cathartic Extract, four Scruples ; and of the Powder of Rhubarb, one Dram.

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First triturate the Quick-silver with the Turpentine, till the former becomes invisible: Then beat all together into a Mass of a proper Consistence for Pills; and if the Turpentine should happen to be too thick, it may be render'd thinner, by a small Quantity of Oil of Olives.

This Prescription is taken from the last College Dispensatory, and seems to be intended as an Imitation of *Belloste's* celebrated Pills. It promises to be very effectual in cutaneous Disorders, Rheumatisms, Ulcers, Scurvy, Obstructions of the Viscera, and the Venereal Disease.

Extractum Ligni Campechensis.

Extract of Logwood.

Take of Logwood reduced to Powder, one Pound; boil it four times or oftner, in one Gallon of Water, to an half. Then let the Liquors, when mix'd and strain'd, be boil'd to a due Consistence.

This is much recommended in a Dysentery, as a very great Astringent.

T H E E N D.



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